00033566

BOMBAY BRANCH
OF THE
ROYAL ASIATIC SOCIETY
TOWN HALL, BOMBAY.

Digitized with financial assistance from the
Mr. Sangi
on 12 April, 2019

Cambridge Geographical Series.

General Editor: F. H. H. Guillemard, M.D.,

formerly lecturer in geography in the university of cambridge.

ETHNOLOGY.

London: C. J. CLAY AND SONS,
CAMBRIDGE UNIVERSITY PRESS WAREHOUSE,
AVE MARIA LANE.
Glasgow: 263, ARGYLE STREET.

Leipzig: F. A. BROCKHAUS.
New York: MACMILLAN AND CO.

H 61

ETHNOLOGY.

IN TWO PARTS

I. FUNDAMENTAL ETHNICAL PROBLEMS.
II. THE PRIMARY ETHNICAL GROUPS.

LIBR
OF
BO
BF
ROYAL AS

BY

A. H. KEANE, F.R.G.S.

LATE VICE-PRES. ANTHROP. INSTITUTE:
CORRES. MEMBER ITALIAN AND WASHINGTON ANTHROP. SOCIETIES;
LATE PROFESSOR OF HINDUSTANI, UNIVERSITY COLL. LONDON.

Eb.d.89
2x.n.13

CAMBRIDGE
AT THE UNIVERSITY PRESS
1896

[*All Rights reserved.*]

33566
ar

572
kea / Eth
33566

Cambridge:
PRINTED BY J. AND C. F. CLAY,
AT THE UNIVERSITY PRESS.

TO

HARRIETTE KEANE

THIS BOOK IS AFFECTIONATELY

DEDICATED

BY

HER HUSBAND.

PREFACE.

COMPREHENSIVE English works on ETHNOLOGY in the stricter sense of the term, works such as those of Dr Prichard, Messrs Nott and Gliddon, and Dr Latham, were all composed before the appearance of Darwin's *Origin of Species* (1859), with which biological studies make a fresh start. Since then special branches of the subject, such as the evolution and antiquity of Man, primitive culture, the Stone and Bronze Ages, and the origin of civilisation, have been treated by several eminent men of science, conspicuous among whom are Sir Charles Lyell, Professor Huxley, Darwin himself, Professor E. B. Tylor, Sir John Evans, Sir John Lubbock and Professor Boyd Dawkins. But scarcely any serious work of a comprehensive character can be mentioned except Dr Brinton's *Classification of Races*, and Professor Tylor's popular treatise on *Anthropology*, which, despite its title, is concerned more with ethnological and social than with strictly anthropological matters.

When, however, the foreign literature of the subject is taken into account, a literature enriched by such eminent names as those of Virchow, Bastian, Waitz, and Kollmann in Germany; Retzius, Castrèn, Worsaae, Forchhammer, Steenstrup and Montelius in Scandinavia; Broca, Topinard, de Quatrefages and Hamy in France; Sergi, Mantegazza and Giglioli in Italy; it becomes evident that, since the general acceptance of evolutionary teachings, sufficient materials have already been accumulated to justify M. de Lapparent's declaration that *l'heure des grandes synthèses a déjà sonné*. Such a synthesis is here for the first time

attempted in the English language, in the hope that, even if but partly successful, it may still be accepted as a boon by those students who acutely feel the want of some trustworthy guide, especially amid the initial entanglements of a confessedly difficult subject. A work speaking with uncertain sound would obviously be useless, or at least of little value, for this purpose. Hence what might otherwise be regarded as a somewhat dogmatic treatment is here necessarily adopted, even in respect of many perplexing problems which till lately might justly be regarded as moot questions on which it would be rash to pronounce a definite opinion either way. But for those who frankly accept its essential principles evolution is found to be a golden "skeleton key," which readily opens the door to many secret chambers, even in the more recondite recesses of human knowledge. Take, for instance, the origin of articulate speech, a question which in pre-Darwinian times was necessarily relegated by naturalists to the region of pure metaphysics, and which by anti-evolutionists is still regarded either as insoluble, or as soluble only by the assumption of direct creative force. Now, however, it is easily seen by anthropologists that language, like man himself, had a very humble beginning, and has reached its present marvellously perfect state *sensim sine sensu*, slowly improving in its phonesis and structure hand in hand with the slow improvement of the physical organs in virtue of which man has become a speaking animal. Its inner mechanism is analysed by the comparative philologist, and found to be reducible to simple elements, and this conclusion is confirmed by the comparative anatomist, who points out with Dr Arthur Keith that the facial organs of speech are non-existent in the anthropoids, rudely developed in fossil man, and perfected only in later ages. Thus is revealed the origin of language, which does not drop ready-made from the skies, but grows up from crude beginnings on the earth. The sources of much false reasoning and mystification are thus removed, and the truth stands out plain enough for all those willing to accept it.

From this view of its origin there directly follow other important inferences regarding the nature and growth of speech. We at once see how hopeless must be the quest of a primitive mother-tongue, which never existed, the faculty starting from a

germ and developing itself in different regions independently. Thus also is exposed the fallacious assumption of speech being "created" or consciously "invented" by primitive man himself, and then passed on from one tribe to another, as when even M. Letourneau writes: "We may perhaps infer that these races have not created their own languages, and that during the very long prehistoric period foreign initiators brought to them idioms which had taken root and grown elsewhere" (*Sociology*, p. 581). It must now be obvious that no speechless people could be taught to talk a ready-made language unless they possessed the necessary physical organs, in which case they would not need to be taught, being already in possession of a language of their own. The organs and the faculty must have been developed simultaneously by repeated tentative and unconscious efforts.

In the same way many other abstruse questions connected with the natural history of man—his physical and mental evolution, his antiquity, his specific unity and varietal diversity—seem to pass easily from the field of abstract speculation to that of solid fact, when approached from the evolutionary standpoint. From any other standpoint they remain, as before, either hopeless riddles or the sport of theological theorists and metaphysical dreamers. What, therefore, might here appear at first sight too assertive and over-confident, may on reflection be found the simple, often the inevitable, outcome of inductive reasoning. When, for instance, Prof. Prestwich speaks of "20,000 or 30,000 years" as the extreme length of man's days on earth, can it be rash to unhesitatingly reject such a narrow estimate in the face of the daily accumulating evidences of his vast antiquity brought to light by such competent explorers as Mr Worthington Smith, Mr W. J. Lewis Abbott, Mr H. Stopes and Mr Harrison of Ightham in the present Thames basin, Dr Collignon and Dr Couillault in North Africa, Prof. Flinders Petrie in the Nile Valley, Prof. Sergi in Italy, Herr Maschka in Bohemia, Dr Noetling in Indo-China, Sig. Lovisato in Fuegia, Mr W. H. Hudson in Patagonia, Dr C. C. Abbott and Mr E. D. Cope in the United States, and others elsewhere? While proofs are being collected of pliocene, and even "early pliocene" man, and while Dr Dubois' *Pithecanthropus erectus* supplies a distinct missing link

between the anthropoids and the Neanderthal race, does not the rashness lie rather with those who would limit the age of eolithic man to late or even post-pleistocene times? When it is remembered that fully 8,000 years ago the Egyptian language was not only developed but already entirely severed from its original connection with the Semitic group, it becomes obvious that merely to account for the highly specialised Hamito-Semitic division a much longer period will be needed than is conceded by Prof. Prestwich to the human family itself. Hitherto "Tertiary man not proven" has rightly been the watchword of the English conservative school of ethnologists. May it not be asked whether the negative particle should not now be struck out of this formula, seeing that almost without exception their continental fellow-workers have with Virchow surrendered the point, and that strong evidence of pliocene man has been brought forward by Sergi in Italy and Noetling in Burma, if not also by Stopes and Harrison in Kent? As these lines are being penned Mr Stopes reports from Swanscombe near Gravesend and from Ash a few miles farther south, numerous finds belonging to all ages, "from the British back to that very remote period when the gravels were being deposited on the high plateau of Kent in pliocene times" (*Athenæum*, Sept. 7, 1895, p. 325).

Clearness has been consulted by a twofold division of the subject-matter, the first dealing with those fundamental problems which affect the human family taken as a whole, the second discussing the more general questions which concern the Hominidæ, that is, the several main branches of mankind. In the first division are introduced some topics, such as the physical evolution of man, his points of contact with the other groups of primates, and the physical criteria of race, which might seem to belong more properly to the field of special anthropology. But in all closely allied branches of knowledge such encroachments necessarily occur, as, for instance, when geography trespasses on geology, and geology on astronomy. In the present instance the "trespass" will perhaps be all the more welcome because no comprehensive work on special anthropology has yet appeared in the English language, so that the student is still mainly dependent on Topinard's masterly treatise. In any case

the introduction of certain anthropological matters was inevitable, the mental qualities, of which special anthropology takes no account, being largely determined by the physical constitution, just as the mind itself has its seat in a physical organ. "Although Mind can never be identified with Matter, nor the acts and states of the mind reduced to acts and states of the brain, yet as the latter are the physical antecedents of the former, the study of the one class of phenomena is calculated to give light and guidance in the study of the other" (Dean Byrne, *General Principles of the Structure of Language*, II. p. 380). And more pointedly elsewhere: "Though thought be not regarded as a function of the brain, yet it is the function of the brain to minister to the acts of thought, so that cerebral action is the condition of mental action. Between these two actions there must be an exact correspondence; so that both must be studied if we would understand either" (p. 379).

In the second part those general questions alone are treated which concern the primary human groups. Here the main object has been to solve some of the more fundamental problems connected with these groups, and thus clear the ground for a complete classification of the Hominidæ. But no attempt is made at such a classification which would require a work to itself, and which may form the subject of a future volume of the present series.

Meantime, a hope may be expressed that this summary of ethnological data will be found helpful to the student, by enabling him to group and coordinate his facts, to understand their mutual bearings, and to fit them into their proper place in the natural history of the human family. But, above all, it should teach him to reason correctly, and draw the right inferences from established premisses, at whatever cost to biassed or preconceived theories on the fundamental ethnical problems. Thus alone can a hope be entertained of some law and order being introduced into the present chaotic state of the public mind on all matters connected with "man's place in nature." In his monograph on *Sculptured Anthropoid Ape Heads from Oregon* (New York, 1891), Mr James Terry draws a deplorable picture of American anthropological literature, "already so filled with opposing theories that it appals the student who undertakes to

unravel the contradistinctions [contradictions?] of its many writers." But the New World can pretend to no monopoly of such bewildering conflicts of opinion. That Mr Terry's picture admits of wider application is made only too evident by a glance at the wild theories of emotional ethnology still persistent amongst ourselves, theories supported by the reckless comparisons and conclusions even of capable writers, who, in the absence of accepted first principles, give bridle to their imagination, and replace sober reasoning by extravagant speculation. Thus whole populations—Japanese, Malays, Egyptians—are, so to say, transferred bodily from the Eastern to the Western Hemisphere, in order to account for shadowy resemblances between the cultures of the Old and New Worlds. And, as if to show the absurdity of this line of reasoning, Dr A. le Plongeon now proposes to reverse the process and make "Mayax" [Yucatan] the "hub of the Universe." Developing the ideas tentatively advanced in his *Sacred Mysteries among the Mayas and Quiches* 11,500 *years ago* (New York, 1886), this antiquary boldly places the cradleland of mankind itself in Central America, where he discovers the tomb and the very dust of Abel slain by Cain, and even "the very weapon employed in the crime." Here, we are told, is still spoken the stock language which affords a key to the interpretation of ancient Egyptian, Sanskrit and Hellenic formulas, while the Greek alphabet itself is shown to be merely an epic poem on the Cain-Abel legend, composed in the same primitive Maya tongue. Even the letters of late introduction, such as *epsilon*, *omikron*, *omega*, bearing pure Greek names, do not escape this philological crucible, *omikron*, for instance, being resolved into the Maya elements *om* = whirlpool, *ik* = wind, *le* = place, and *on* = round, meaning "whirlwinds blow round." Ample details of these "startling revelations," divulged in all seriousness, are communicated through Mr O'Sullivan, H.B.M. Vice-Consul at Pemba, to the *Review of Reviews* for September, 1895, and thus acquire a sort of official stamp.

Another case in point is the rivalry still maintained between many prominent exponents of the anthropological and philological sciences, whose antagonism has flooded ethnological literature with barren controversy, and retarded the progress of these sister sciences by confused methods of ratiocination. It

is contended, on the one hand, that the races of men spring from several geographical centres independently, because their languages are fundamentally distinct; it is retorted on the other hand that language and race have nothing in common, or at least are in no way correlated. But when the nature of the evidence is examined in the light of the first principles which the present work aims at establishing, it is seen that neither of such extreme views can be right, while a way may nevertheless be found to reconcile the rival claims of the anthropologist and the philologist (Chaps. VII. and IX.). From this example we see how true it is that an essential condition for the successful prosecution of ethnological studies is the power of reasoning aright on the facts admitted and appealed to by both sides.

But a more formidable rivalry, and one destined probably to last longer, is that which persists between dogmatism and the biological sciences. In his presidential address at the meeting of the British Association, Ipswich, 1895, Sir Douglas Galton referred to the services rendered to the advancement of knowledge by the late Professor Huxley, whose action had helped to sweep away the obstructions of dogmatic authority which in the early days of the Association had fettered progress, especially in anthropological studies, and whose energy and wealth of argument had largely aided in winning the battle of evolution and securing the right to discuss questions of religion and science without fear or favour. The homage paid to the memory of the great captains on the scientific side, the greatest of whom found a resting-place in the British Walhalla, warrants the belief that their opponents are now willing to give their arguments at least a fair hearing. When it is further seen, as the late Professor J. D. Dana clearly saw, that there is nothing in the doctrine of evolution rightly understood "to impair or disturb religious faith" (*Letter* to the Rev. J. G. Hall, Cleveland, Ohio, March 3, 1889), we shall have arrived at a measurable distance of the time when that doctrine will take its place by the side of the Copernican and Newtonian teachings, as an elementary truth at the foundation of a rational conception of man and the universe. Then a way will also be found, as already here suggested (p. 30), to reconcile the views of Science and Religion on the origin and evolution of the human species. But it would be

idle to pretend that there can be any compromise on the part of Science. Hence such a reconciliation must necessarily involve some concessions by the dogmatists, such, for instance, as enabled them to ultimately accept the Copernican view of the solar system, despite the geocentric theory prematurely raised to a dogma on the strength of Biblical texts. Such developments within the sanctuary are inevitable if the religions are to retain the respect of their more thoughtful adherents, and British orthodoxy itself is warned by the present head of the Church of England not to forget "that every age does and ought to shed new light on truth. To refuse to admit such light and its inherent warmth is to forfeit the power of seeing things as they are and to lose the vigour of growth. It is, in fact, to limit ourselves finally to a conventional use of hard formulas" (*Pastoral Letter*, August 30, 1895).

In a work of this nature, dealing with a multiplicity of subjects, on all of which nobody can be supposed to have personal knowledge, it is not to be expected that the views advocated, or even the mere statements of facts, will be always accepted on the *ipse dixit* of the writer. Hence the necessity of constant reference to received authorities, which may possibly here and there encumber the text, but which will not on that account be objected to by the serious student. Quotations, however, especially from foreign sources, are in most cases transferred to the footnotes, where the reader will find nearly all important statements supported by proof or authority of some kind. At the same time full responsibility is accepted for all theories or conclusions which are here advanced for the first time, or which at least are not known by the author to have been put forward by any previous writer. Such are in Part I. the evolution of neolithic megalithic architecture (Chap. VI.); the relation of stock languages to stock races (Chap. VII.); the evolution of the various morphological orders of speech, and the general relations of race and language (Chap. IX.); in Part II. the order of evolution of the primary groups, and their centre of evolution and dispersion (Chap. X.); the treatment of the linguistic problem in Oceanica, and of the racial problem in Australia and Tasmania (Chap. XI.); the Finno-Tartar, Chukchi and Malay racial problems, and the Malayo-Polynesian linguistic relations (Chap. XII.); the peopling of America in the Stone Ages, the

independent local evolution of American cultures, and the treatment of the Eskimo question (Chap. XIII.); the general treatment of *Homo Caucasicus*, the Ibero-Berber question, the Aryan cradle-land and the Aryan race problem (Chap. XIV.).

It remains gratefully to acknowledge the loan of photographs and other illustrations, elsewhere specified, from Messrs Flower and Lydekker, Sir John Evans, Dr D. J. Cunningham, the publishers of *Nature*, Mr Edward Stanford, Messrs Longmans, Mr J. J. Lister, Dr H. O. Forbes, Mr W. T. Stead, and the Royal Geographical Society. Thanks are also due to Messrs Cassell for their kind permission to use some of the ethnological material contributed by the writer to their *Storehouse of Information*, and to the Editor of this series, whose careful revision was not confined to typographical matters.

A. H. K.

ARÁM-GÁH,
79, BROADHURST GARDENS, N.W.,
October, 1895.

CORRIGENDA.

p. 110, l. 29. Human Types (Neolithic) at first mainly brachycephalous *should be* at first mainly dolichocephalous.

p. 157, l. 4. Allgemeine Ethnologie *should be* Allgemeine Ethnographie.

p. 157, ll. 21—2. Any anthropoid apes, none higher than the Cebidæ, *should be* any anthropoid apes higher than the Cebidæ.

p. 170, l. 23. After "ethnical term" supply note of interrogation.

p. 338. Zámbira *should be* Zámbisa.

CONTENTS.

PART I.

FUNDAMENTAL PROBLEMS.

CHAPTER I.

PRELIMINARY.

Definitions—Anthropology General and Special—Ethnology—Ethnography—Scope of Ethnology—General Nomenclature—Definite Terms: Race; Clan; Tribe; Family; Totem; Branch; Stock; Type—Indefinite Terms: Division; Section; Group; Horde; Nation; People—Example 1—15

CHAPTER II.

PHYSICAL EVOLUTION OF MAN.

Man's Place in the Animal Kingdom—The Primates—Old Divisions: Quadrumana and Bimana—New Divisions: Lemuroidea and Anthropoidea—The five families of the Anthropoidea—Their range in time and space—Diagram of the Anthropoid families—Relations of the family Hominidæ to the family Simiidæ—Comparative Table of the Simiidæ and Hominidæ: Gibbon; Orang; Gorilla; Chimpanzee; Dryopithecus; Hominidæ—Points of resemblance to and difference from the Simiidæ—Origin of Man by Creation or Evolution—Creation Theory inadequate—Evolution Theory adequate—Natural and Supernatural views reconciled—Difficulties of the progressive evolutionist theory—Views of de Quatrefages, de Mortillet and Sergi—The Castenedolo Man—Sergi's Tertiary Hominidæ—Quaternary Man—Cannstadt Man rejected—Neanderthal affirmed—The Quaternary Hominidæ—Kollmann's Dauertypus—Persistence of primitive types—Views of French, English and American Anthropologists—Difficulties of the Dauertypus theory—Analogy of the Equidæ—Their evolution

—Sergi's Tertiary Hominidæ rejected—Persistence of, and Reversals to, primitive types reconciled with evolutionary teachings—Comparative Diagrams of Pleistocene Hominidæ and Equidæ—Broad stages of physical evolution from a postulated Anthropoid Miocene precursor 16—39

CHAPTER III.

MENTAL EVOLUTION OF MAN.

Human incomparably greater than animal intelligence—Growth of mind apparently out of proportion to that of its seat, the brain—Evolution of organ and function correlated—Cranial to be distinguished from mental capacity—Comparative cranial studies often contradictory—Chief physical determinants of mental power not so much the volume of the brain as its convolutions and the cellular structure of the grey cortex—These elements capable of indefinite expansion till arrested by the closing of the cranial sutures—Different degrees of intelligence in different races accounted for—Such differences independent of the general bodily structure—Hence physique and mental power not necessarily correlated and not always developed *pari passu*—But mind and cerebral structure always correspond—Hence comparative study of brain texture, as by Broca and Miklukho-Maclay, yield best results—Brain and its function, thought, capable of indefinite future expansion—Differ in degree only, not in kind, from those of the lower orders—Time alone needed to bridge the gap 40—49

CHAPTER IV.

ANTIQUITY OF MAN: GENERAL CONSIDERATIONS.

The Geological Sequence in its bearing on the Antiquity of Man—Table of the Geological Sequence: Primary; Secondary; Tertiary; Quaternary; Prehistoric; Historic—The Glacial Problem—Reactionary Views—Croll's Periodicity Theory—Objections and Limitations of Time by Prestwich—A reductio ad absurdum—Arguments based on influence of Gulf Stream and Absence of Glaciation in earlier geological epochs estimated—Croll's Theory reaffirmed—A long period of time needed to meet all the conditions: Redistribution of Land and Water; Intermingling of Arctic and Tropical faunas; Scouring out of great river valleys; Man long associated with extinct animals; Britain twice submerged since its occupation by man; Little trace of primitive man in the last post-glacial deposits of the North—Two Ice-ages and long Inter-glacial period essential factors—Difficulties

of the Intermingled Arctic and Tropical Faunas—Lyell and Boyd-Dawkins' "Seasonal-Migration" Theory discussed—Long association of reindeer and hyæna explained—Great age of the flints found in the high-level drift, boulder-clay, plateaux and riverside terraces—Pre-, Inter- and Post-Glacial Man—The problem restated—General Conclusion—Pliocene Hominidæ rejected—Specialised Inter-glacial Hominidæ reaffirmed—Their probable age—Post-glacial Man a nondescript 50—70

CHAPTER V.

THE ANTIQUITY OF MAN: PALÆOLITHIC AGE.

Palæolithic Man spread over the whole world—But in many places early and later Cultures run in parallel lines, not in time sequence—Hence the Time relations often obscured, objects of human industry not being everywhere tests of age, but only of grades of culture—Even these grades not always clearly distinguished—Palæolithic art not stationary but progressive, and in some respects outstripping that of neolithic times—Materials available for the study of primitive Man: implements, monuments and human remains—Unreasonable objections to implements (palæoliths) as evidence of antiquity—Value of implements determined by their provenance and associations in geological formations or in caves—Stalagmite beds not necessarily a test of age—Kitchen-middens of all ages, some very old, some recent and of rapid growth, hence to be judged on their merits—Human remains reserved for special treatment—Quaternary Man in Britain: Evidence of Hatfield Beds; Kent's Cavern; Brixham Cave; Cresswell and Victoria Caves; Lotherdale and Pont Newydd Caves; Vale of Clwydd Caves; Thames river-drift; High-level gravels; Chalk plateau, Kent; Eoliths from Canterbury gravels, Stoke Newington, &c.—Quaternary Man in France: Somme Valley river-drifts, St Acheul—Grades of Palæolithic Culture—De Mortillet's Four Epochs: Chellian Age, typical implements; Moustierian Age, typical implements; Solutrian Age, typical implements; Madelenian Age, typical implements—The Dordogne School of Art—Plaçard Cave: Superimposed Culture eras—Evidences of Palæolithic Man in France and Italy—Quaternary Man in Africa (Egypt, Algeria, the Cape); in Asia (Syria, Palestine, Asia Minor, Caucasus, Mongolia, India, Japan); in Australia and New Zealand; in America (Tierra del Fuego, Patagonia, Argentina and Brazil, Mexico, United States and Canada); evidence from the Trenton gravels; Mississippi Basin and other localities; Views of Chamberlin, Holmes, Mason and other conservatives on the value of this evidence; the Calaveras Skull—General Diffusion of Primitive Man throughout North America—The Mound-builders not quaternary; their Culture neolithic, prehistoric and historic . 71—107

CHAPTER VI.

ANTIQUITY OF MAN: NEOLITHIC AND METAL AGES.

Marked difference between the Old and New Stone Ages—Comparative Table of Palæo- and Neolithic Cultures—A Break of Continuity in some regions, notably in Britain—But not everywhere—No universal hiatus possible—Continuous evolution in the south and south-east—Probable duration of neolithic times—The late palæolithic era of the West synchronous with the early neolithic era of the South-east—Great duration of neolithic times argued on general considerations—The Danish peat-bogs a time gauge—The Danish kitchen-middens—Origin and growth of aquatic stations—The Swiss Lake-Dwellings—The Irish and Scotch crannogs—Neolithic structures—Reducible to two types: The polylith or cell, and monolith or block, originating in Burial and Ancestry worship—Polylithic and monolithic nomenclature—Evolution of the Cromlech or Dolmen through the Barrow from the Cell—Popularly associated with druidical rites—The Sessi and Stazzone of Malta and Corsica—The Nuraghi of Sardinia—The Talayots of the Balearic Islands—The Russian Kurgans—Silbury Hill—The Cell becomes a Family Vault with later developments—The Menhir, its origin and wide diffusion—Its development in linear and circular direction—The Alignments and Cycloliths (Stone Circles)—Their origin and purpose explained—Erdeven; Stonehenge; New Grange; Menec, Carnac district—The Irish Round Towers—Geographical Distribution of the Megaliths—Chief Centres: Bahrein Islands; Moab; Mauritania; Gaul, Britain, Scandinavia—Bearing on the question of early migrations—Europe re-settled in Neolithic times from two quarters—Routes indicated by the presence or absence of Megalithic Structures—These wrongly accredited to the Kelts who followed the non-megalithic route—Astronomic and religious ideas attributed to the megalith-builders—Prehistoric monuments in the New World—General Survey—Tiahuanaco, culminating glory of American Megalithic architecture—Tiahuanaco Culture an independent local development 108—140

CHAPTER VII.

SPECIFIC UNITY OF MAN.

Specific or Varietal unity decided by extent of divergence between past and present races—Species and Variety—The Physiological test: inter-racial fertility—The Canidæ, Equidæ and Hominidæ—The Palæolithic races—

Their remains: Trinil: Homo Neanderthalensis; La Naulette; La Denise; Spy; Kent; Podbaba; Predmost; Marcilly; Mentone; Olmo; Eguisheim; Laugerie; Palæolithic races exclusively long-headed—Neolithic races at first also long-headed, then mixed, and later exclusively round-headed in some places—But all intermingled—Fertile miscegenation established for prehistoric times—In the historic period mixture the rule, racial purity the exception—The Mestizos of Latin America—The Paulistas, Franco-Canadians, and Dano-Eskimo—The United States Indians and half-breeds—Eugenesis established for the New World, and for Africa: The Griquas, Abyssinians, Sudanese, and West African Negroes—Mixed races in Asia, Malaysia, and Polynesia—The Pitcairn Islanders—The physiological test conclusive against the Polygenists—The anatomical test—The Polygenist linguistic argument: Independent stock races inferred from independent stock languages—Fallacy of this argument—Specific Unity unaffected by the existence of Stock Languages—which are to be otherwise explained—The Monogenist view established—and confirmed by the universal diffusion of articulate speech—Psychic argument—The question summed up by Blumenbach . . . . . 141—161

CHAPTER VIII.

VARIETAL DIVERSITY OF MAN: PHYSICAL CRITERIA OF RACE.

Difficulties of defining, and determining the number of, the primary human varieties—Schemes of the first systematists: Bernier; Linné; Blumenbach; Cuvier; Virey; Desmoulins; Bory de Saint-Vincent; Morton; Gliddon and Agassiz; Latham; Carus; Peschel—The Philologists—The Ethnologists: Buffon; Prichard—The Anatomists: Geoffroy Saint-Hilaire; Retzius; Broca; Virchow; Mantegazza; Barnard Davis; Rolleston; Flower; Cope—Recent Schemes: Haeckel's; de Quatrefages's; Huxley's; Broca's; Fr. Müller's; Deniker's; Flower and Lydekker's—General remarks on these Groupings—Elements of Classification: Physical and Mental Characters—Physical tests of Race: Colour of the Skin—Colour and Texture of the Hair—The Beard; Hirsuteness—Shape of the Skull—Cephalic Indices—Tables of Dolicho-, Mesati- and Brachycephali—Gnathism—Facial Index—Table of Sub-nasal Prognathism—The Dentition—The Nose: Nasal Index—Colour and Shape of the Eye—The General Expression—Stature: Tables of Heights—Other Physical Factors 162—189

CHAPTER IX.

VARIETAL DIVERSITY OF MAN: MENTAL CRITERIA OF RACE.

Cranial Capacity—Size of brain and Mental Capacity correlated in the animal series—and partly in man—Comparative Tables of Cranial Capacity—Language the chief mental criterion—Relation of speech to Anthropology—Phonesis a physical function which cannot be neglected by the anthropologist—Value of language to the ethnologist—Evolution of speech from the inorganic to the organic state—The faculty originated most probably in a single centre—Reply to the linguistic polygenists—Speech of relatively recent growth—Hence at first unstable and subject to great fluctuations—Hence also linguistic divergence more rapid than physical types, forming species and genera which cannot mix—Hence no mixed languages—Consequent value of speech as a racial test—Linguistic more easily distinguished than physical groups—Table of mixed peoples speaking unmixed languages—Table of peoples whose speech has shifted without mixing—Table of peoples whose physical type has changed, their speech persisting—Hence speech and race not convertible terms—But speech often a great aid in determining ethnical elements—The morphological orders of speech—Old views of linguistic growth—The "Root" theory—Monosyllabism not the first but the last stage of growth—The sentence the starting-point—The monosyllabic languages originally polysyllabic—Chinese the result of phonetic decay—The Aryan root theory exploded—Root and Atom; Sentence and Molecule—Agglutination—Its nature and test—The morphological orders not fixed species—but transitional phases of growth—Inflection reverts to Agglutination—Agglutination passes into Inflection and Polysynthesis—Polysynthesis not a primitive but a late condition of speech—Differs in kind from Agglutination—Nature of Inflection—Diagram of linguistic evolution—Development of speech not linear but in parallel lines—Synthesis and Polysynthesis tend towards monosyllabic analysis—Change from pre- to post-position in the Aryan group—Change the Universal Law of all living speech—Social state: Fishing, Hunting, Agriculture, no test of race—Social Usages poor criteria—Religion—Origin and development of nature and ancestry worship—Anthropomorphism due to the common psychic character of man—Hence common religious ideas no proof of common origin or of contact—Like usages no evidence of common descent . . . . . 190—219

PART II.

THE PRIMARY ETHNICAL GROUPS.

CHAPTER X.

MAIN DIVISIONS OF THE HOMINIDÆ.

Four Primary Groups—Homo Æthiopicus, Mongolicus, Americanus, Caucasicus—Family Tree of the Hominidæ—The primary groups derived, not one from the other, but independently from a common precursor—Their differences determined by their different environments—Position of the several groups—The Negro—The Mongol and American—The Caucasian—Remarks on this Terminology—Comparative Table of the physical and mental characters of the four primary groups—Centre of Evolution—Distribution of land and water in Secondary and Tertiary Times—The Indo-African Continent—The Austral Continent—The Eurafrican Continent—The Euramerican Continent—America accessible from Europe and from Asia—Theory of de Quatrefages on the migrations of primitive man—His linguistic argument—Views of Dallas—and Brinton—Evolution "with a jump"—The Missing Link—Probable centre of Evolution and Dispersion of the Indo-African and Austral regions, true Home of the Lemurs and of the Anthropoids—Characters of the pliocene precursor and of the pleistocene sub-groups persistent in the Afro-Austral regions—Pliocene and pleistocene migrations from the primeval home—Order of Development of the primary groups in their several centres of evolution—Monogenist and Polygenist views reconciled—Flower and Lydekker on the spread of the Hominidæ over the globe. . . . . 221—241

CHAPTER XI.

HOMO ÆTHIOPICUS.

Two divisions: African and Oceanic—Negro Family Tree—The Negritoes: Two divisions—Early migrations—The African Negritoes—The Akkas and Batwa—The Bushmen and Hottentots—Past and present Hottentot-

Bushman domains—The Oceanic Negritoes—The Black element in India —The Oceanic Negrito groups: Andamanese; Sakais of the Malay Peninsula; Aëtas of the Philippines; Karons of New Guinea; Kalangs of Java—The Negro divisions compared—The African Negro unprogressive without miscegenation—Testimony of H. H. Johnston, Manetta, Ruffin and Sir Spencer St John—Historic evidence—Low state of Negro culture —Two main sub-divisions: Sudanese and Bantu—The Sudanese Negroes —Mixed Sudanese groups—The Fulahs—The Negroid Bantus—The Zulu-Kafirs and Wa-Huma—The Bantu linguistic family—General intermingling of the Sudanese and Bantu populations—Hence classification impossible except on a linguistic basis—Tables of the Sudanese and Bantu groups— The Oceanic Negro domain—An area of great ethnical confusion—Two main sub-divisions: Insular Negroes and Negroid Australians—Nomenclature: Melanesians; Papuans—The Papuan domain, past and present— The Papuan type—The linguistic problem—Wide diffusion of Malayo-Polynesian speech not due to Malay or Polynesian Migrations—Still less to Melanesian Migrations—The true explanation; the Caucasic factor— The Australian sub-division—Not homogeneous—Constituent elements of the Negroid Australians—and of the Tasmanians—Tasmanian culture eolithic . . . . . 242—294

CHAPTER XII.

HOMO MONGOLICUS.

Asia home of the Mongol race—easily accessible to the pliocene precursor— Transition from the generalised human type to the Mongol variety— Chief Mongol physical characters—Diffusion of the Mongol race—Early Mongolo-Caucasic interminglings—Hence aberrant Mongolic groups— Mongol Family Tree—Chief Mongol sub-divisions—Their domain—The Akkads—Early linguistic relations—The Mongolo-Tatar sub-division— Nomenclature: Mongol; Tatar; Túrki—Divergent Finno-Túrki types— The Samoyedes—The Lapps—The Baltic Finns; Karelians; Tavastians —White elements in the Mongolo-Tatar domain—Avars—Magyars— Bulgars—Osmanli affinities—Koreo-Japanese group—The Koreans—The Japanese: Physical qualities; Mental qualities—The "Hyperboreans"— The Chukchi problem—The Tibeto-Indo-Chinese sub-division—General physical uniformity—Tibeto-Chinese linguistic relations—Function of Tone in the Isolating Languages—Tibetan linguistic affinities—Indo-Oceanic linguistic relations—The Indonesians—The Malay problem— Malay physical type—Malagasy affinities—Malayo-Polynesian linguistic relations—Ethnical relations in the Philippine Islands. 295—333

CHAPTER XIII.

HOMO AMERICANUS.

America peopled from the Eastern Hemisphere during the Stone Ages—The bronze age of Chimu (Peru) no proof of later intercourse between the Old and New Worlds—Hence the American aborigines are the direct descendants of palæolithic and neolithic man—and their later culture is consequently an independent local development—But Homo Americanus is not autochthonous, but a specialised form of a Mongol prototype—General Uniformity of the American physical type—Texture of the hair; colour of the skin—"White" and "Black" aborigines no proof of early migrations from Europe or Melanesia—Arguments of De Quatrefages discussed—The Japanese myth exposed—The "stranded junk" argument—Culture of the early Stone Age identical in both hemispheres—But after that age the arts and industries show continuous divergence in America—Argument based by Retzius on the two types of American crania—Contrasts between the present Mongol and American physical types—Mental Capacity of the American aborigines superior to the Negro, on the whole inferior to the Mongol—But the Cranial Capacity inferior both to Mongol and Negro—Striking uniformity of the mental characters of the aborigines—in North America—in South America—Uniform character of American speech in its general morphology—Fundamentally distinct from the structure of the languages of the Old World—Surprising number of American stock languages despite their common polysynthetic type—Classification of the aborigines must always be mainly based on language—Family Tree of Homo Americanus—America probably peopled by two routes—From Europe by palæolithic, from Asia by neolithic man—Present distribution of the two types—The Eskimo question—Its solution—Prof. Mason's theory of the peopling of America from Indo-Malaysia—Negative Objections to this theory—Positive Objections—True explanation of the coincidences between certain usages and mental aspects of the inhabitants of the Old and New Worlds—Due not to contact or borrowings, but to their common psychic constitution—Results of the discovery and re-settlement of America on the aborigines in Latin America—In Anglo-Saxon America—The Anglo-American type due, not to miscegenation, but to convergence . . . . . 334—373

CHAPTER XIV.

HOMO CAUCASICUS.

North Africa probable cradle of the Caucasic race—which spread thence east to Asia and north to Europe—The Cro-Magnon and other early European races affiliated to the fair Berbers of Mauritania—West Europe occupied by several varieties of Homo Caucasicus in the Stone Ages—Who were of non-Aryan speech like the still surviving Basques—The Ibero-Berber problem—Basques and Picts—Family Tree of Homo Caucasicus—Xanthochroi and Melanochroi—Blacks of Caucasic Type—Physical Characters of Homo Caucasicus—White, Brown and Dark Hamites—The Tamahu Hamites of the Egyptian records—The "New Race" in the Nile Valley—The Eastern Hamites: Afars; Bejas; Gallas and Somals; Masai and Wa-Huma—Ethnical relations in Abyssinia: Himyarites; Agaos; The present Abyssinian populations—Relations of the Hamites to the Semites—The Semitic Domain—The Semitic Groups—Semitic physical and mental characters—The Semitic Languages—The Aryan-speaking Peoples—Aryan a linguistic not a racial expression—True character of the Aryan migrations—Illustrated by the Teutonic invasion of Britain; and by the Hindu invasion of India—The Aryan Cradleland—Primitive Aryan Culture—Schrader's hypothesis—Conflicting views regarding the Aryan Cradleland reconciled—The Eurasian Steppe true home of the primitive Aryan Groups—The primitive Aryan type difficult to determine—But probably xanthochroid—The Aryan problem summed up—Recent expansion of the Aryan-speaking Peoples—The "Greater Britain"—The Aryan linguistic family—Table of the Aryan linguistic groups—Disintegration of primitive Aryan speech—The Teutonic phonetic System—Ethnical and linguistic relations in the Caucasus—Main Divisions of the peoples and languages of Caucasia—Ethnical and linguistic relations of the Dravidas—Sporadic Caucasic Groups: Todas; Ainus . . . . . 374—420

ADDENDA . . . . . 421—426

INDEX . . . . . 427—442

LIST OF ILLUSTRATIONS.

PART I.

PAGE

Diagram of the Anthropoid suborder of Primates 19
Skull of Orang, from Flower and Lydekker's *Mammals Living and Extinct* 21
Orang-Utan, from Guillemard's *Cruise of the Marchesa* 21
Chimpanzee, from Lydekker's *Royal Natural History* 23
Diagram of the Simiidæ and Man, reduced from Huxley's *Man's Place in Nature* 27
The Neanderthal Skull, from a photograph 33
Diagram showing the Evolution of the Equidæ, from Flower and Lydekker, *op. cit.* 36
Comparative Diagrams of the Pleistocene Hominidæ and Equidæ . . 38
Remains of Palæolithic Man from Kent's Cavern, from Sir John Evans' *Ancient Stone Implements of Great Britain* 79
River Drift Palæolith from Santon Downham, *ibidem* 80
River Drift Palæolith from Redhill, *ibidem* 85
Palæolithic Engravings from Duruthy and La Madeleine Caves . . 88
The Placard Cave, with Section of Floor 90
Palæoliths from the District of Colombia, U.S., from Wilson's *Prehistoric Anthropology* 102
Neoliths from various localities in the United States, *ibidem* . . . 109
Neolithic Celt from Bridlington, from Sir J. Evans' *Ancient Stone Implements* 112
Neolithic Arrow-head from the Yorkshire Wolds, *ibidem* 113
Neolithic Stemmed Arrow-head from the Yorkshire Wolds, *ibidem*. . 114
Neolithic Javelin or Arrow-head from Iwerne Minster, Dorset, *ibidem* . 116
Neolithic perforated Axe from Hunmanby, Yorks, *ibidem* 118
Trevethy Stones, from a photograph 125
Ground-plan of Palo-de-Vinha Dolmen, Portugal 126
Dolmen-Tumulus of Kercado, Brittany 128
Dol Menhir, from a photograph 129

PAGE
The Carnac Alignments, from a photograph 132
Skull of *Pithecanthropus erectus*, from Dr E. Dubois' Monograph, Batavia, 1894 144
Comparative Diagram of Irish, Spy, Neanderthal, Pithecanthropus and Gorilla Crania, from Dr D. J. Cunningham's Paper on Pithecanthropus, *Nature*, Feb. 28, 1895 145
The Spy Cranium No. 1, from Ph. Salmon's *Races Humaines Préhistoriques* 146
Diagram of J. Deniker's Scheme of Classification of Races, *Bul. de la Soc. d'Anthropologie*, June, 1889 169
Diagrams showing the various forms of the human hair in transverse section 176
Orthognathous Skull of Kalmuk, after von Bauer 183
Prognathous Skull of Negro 183

PART II.

Family Tree of the Hominidæ 224
Family Tree of Homo Æthiopicus 244
Akka of Mangbattuland (African Negrito Type) 247
Sakai of Malay Peninsula (Oceanic Negrito Type), from a photograph by Miklukho-Maclay 258
Samang of Malay Peninsula (Oceanic Negrito Type), from a photograph by Miklukho-Maclay 258
Aeta Woman of Luzon (Oceanic Negrito Type), from a photograph in A. B. Meyer's *Album von Philippinen-Typen*, Dresden, 1885 . 260, 261
Ardi, a Kalang of Java (Oceanic Negrito Type), from a photograph by H. van Musschenbroek 262
A Zulu Girl of Natal (Bantu Type), from a photograph 271
Susu Negro, Senegambia, from a photograph by Prince Roland Bonaparte 276
Aduma Negro, Ogoway Basin, from a photograph by Prince Roland Bonaparte 278
Australian (normal Type), from A. H. Keane's *Types of the Races of Mankind*, Longman's *New Atlas*, 1889 280
Native of Duke of York Island (Melanesian Type), from a photograph by O. Finsch (*Reise in der Südsee*, Berlin, 1884) 282
Native of New Britain (Melanesian Type), from a photograph by O. Finsch, *ibidem* 282
Native of Nifelole Island (Melanesian Type), from a photograph by the Rev. W. G. Lawes 282
Native of S. E. New Guinea (Papuan Type), from a photograph by H. O. Forbes 283
Native of Dutch New Guinea (Papuan Type), from Guillemard's *Australasia* (Stanford Series) 286

PAGE

Australian of Queensland (primitive Type), from a photograph by J. J. Lister 293

Native of Tasmania (normal Type), from a sketch by Lieut. F. G. S. de Wesselow, R.N. 293

Manchu of Kulja (full face) } from a photographic album of Central
" " " (profile) } Asian Types taken at Tashkend in
Kalmúk Woman (West Mongol Type) } 1876; R. Geograph. Society's Collection 298

Family Tree of Homo Mongolicus 300

Akkad of Babylonia (Mongol Type?), restored by Theo. Pinches (*Types of the Early Inhabitants of Mesopotamia* in *Journ. Anthrop. Inst.* 1891, p. 91) 301

Ostyak Woman (North Mongol Type), from S. Sommier's *Sirieni, Ostiacchi e Samoiedi*, Florence 1887, p. 88 306

Kara-Kirghiz of Semirechinsk (full face) }
" " " (profile) }
Kara-Kirghiz Woman of Semirechinsk }
Kirghiz of Tashkend (Túrki Type) } from the Tashkend Album of
Uzbeg of Zerafshán District (Mixed Turko-Iranian Type) } Photographs (see above) 310, 312
Solon of Kulja (Manchu Type) }

Japanese Woman, from a Japanese photograph 315

Japanese Jinricksha runner, from a Japanese photograph 315

Siamese (Indo-Chinese Type) } from A. H. Keane's *Types of the Races of*
Chukchi of N.E. Siberia } *Mankind* (see above) 318

Annamese of Saigon (Indo-Chinese Type), from a photograph by Prince Roland Bonaparte 320

Burmese Lady (Indo-Chinese Type), from a photograph 320

Chinese Woman of Kulja (full face) } from the Tashkend Album (see
" " " (profile) } above) 321

Sundanese of West Java (Malay Type), from a photograph by Prince Roland Bonaparte 327

Native of Tonga Is. (Eastern Indonesian Type), from Guillemard's *Australasia* 329

Blackfoot Indian (Redskin Type), from a photograph 338

Native of Otovalo, Ecuador }
Native of Zámbira, Ecuador }
Native of Vancouver Island } from W. Reiss and A. Stübel's
Native of Saquisili, Ecuador } photographic album of Indian
Paëz Indian, of Tacuzo, Colombia } Types of Ecuador and Colombia, Berlin, 1888 . . 338, 339, 348

Native of British Guiana (True Carib Type) } from E. im Thurn's collection of photographs in the
Native of British Guiana (Arawak Type) } R. Geograph. Soc. 355, 356

Family Tree of Homo Americanus 361

PAGE

Eskimo of Alaska, from A. H. Keane's *Types of Races* (see above) . . 363
Family Tree of Homo Caucasicus 380
Norwegian (Xanthochroid Type), from A. H. Keane's *Types of Races* . 381
A Riff, North Coast Morocco (Berber Type), from a photograph taken in Tangier 384
Berber (West Hamitic Type), Somali (East Hamitic Type), Arab (Semitic Type) } from A. H. Keane's *Types of Races* (see above) 383, 388, 393
Afghán of the Zerafshán District, Hindu of East Turkistán } from the Tashkend Album (see above) 397, 400
Swami Vivekanada (High Caste Hindu Type), M. Khrimian, Catholicos of Armenia (Irano-Semitic Type) } from W. T. Stead's *Congress of Religions* 399, 404
A Tajik of Tashkend (Iranian Type), A Tajik Woman, E. Turkistán (Iranian Type) } from the Tashkend Album (see above) 406, 407
A Monk of Kikko Monastery, Cyprus (Greek Type), from a photograph by Dr F. H. H. Guillemard 408
A Parsi of Bombay (Iranian Type), from the *Congress of Religions* (see above) 409
Kabardian of Central Caucasus (Melanochroid Type), from A. H. Keane's *Types of Races* (see above) 416
Ainu of Urap (Caucasic Type), from R. Hitchcock's *The Ainos of Japan*, Washington, 1892 419

PART I.

FUNDAMENTAL PROBLEMS.

CHAPTER I.

PRELIMINARY.

Definitions—Anthropology General and Special—Ethnology—Ethnography—Scope of Ethnology—General Nomenclature—Definite Terms: Race; Clan; Tribe; Family; Totem; Branch; Stock; Type—Indefinite Terms: Division; Section; Group; Horde; Nation; People—Example.

Definitions. Anthropology general and special.

Of the various branches of knowledge, whose subject is man, the most comprehensive is ANTHROPOLOGY[1], which in fact, taken in its broadest sense, embraces all the others. But as knowledge grows it necessarily tends to become specialised, and Anthropology, the "Science of Man," is now mainly restricted to the study of man as a member of the Animal kingdom. It seeks to determine the position of the human family in the group of mammals, and more particularly to define its relations to the anthropoid apes, the nearest genera in the order of primates. Thus special, as opposed to general Anthropology, is a science whose object is the study of mankind considered as a whole in its separate individuality and in its relations to the rest of nature (*Paul Broca*).

Scope of special Anthropology.

But the relations of man to the Anthropoidea are mainly physical, and in any case zoological studies take little or no account of the mental qualities of animals, but only of their bodily structure. Hence it is that special anthropology is concerned above all with the

[1] Gr. ἄνθρωπος = man; λόγος = discourse.

human anatomy, and the anthropologist, as here understood, is essentially a comparative anatomist. Again, the *Hominidæ*, that is, the primary members of the human family, also present structural differences, which have to be gauged by comparative anatomical studies. Consequently not only man as a whole, but also the main divisions of mankind, come to this extent within the scope of special anthropology.

Ethnology.

On the other hand these main divisions differ also in their mental qualities, and their psychological are at least as important as their physical characters. Hence special anthropology cannot cover the whole of this field, and as it were on the principle of division of labour, hands over the detailed study of the Hominidæ in all their relations to the sister science ETHNOLOGY[1], which has been aptly defined as that branch of general anthropology which deals with the relations of the different varieties of mankind to each other (*Latham*). Thus is clearly seen the essential difference between the two, about which confusion still prevails. Anthropology treats its subject primarily from the physical side; ethnology treats the same subject both from the physical and physiological sides, borrowing its anatomical data however from the elder branch. The one is more technical and special, the other more all-embracing, while both must be regarded as mutually complementary.

Ethnography.

Again ethnology differs essentially from ETHNOGRAPHY[2] with which it is also constantly confused, but which in correct language is rather literature than science. It is purely descriptive, dealing with the characteristics, usages, social and political condition of peoples irrespective of their possible physical relations or affinities[3]. The

[1] Gr. ἔθνος = race, people.

[2] Gr. ἔθνος and γραφή = description.

[3] Such at least is the general use of these terms amongst English writers, and it is desirable that the distinction be maintained, both for the sake of clearness, and to avoid the practice of French writers, who almost habitually confound ethnology and the synonymous ethnogeny with ethnography, and are thus obliged, when precision is essential, to speak of "ethnographie descriptive." M. de Rosny, amongst others, gives an unlimited scope to ethnography, declaring that it results from "la synthèse de toutes les sciences qui ont pour but de rechercher la mission de l'homme et ses destinées"; on which M. J. van

subjects of ethnography are the various groups of peoples taken independently one of the other; the subjects of ethnology are the same human groups regarded as so many correlated members of one or more primordial families. Hence ethnology, like anthropology, necessarily proceeds by the comparative method, co-ordinating its facts with a view to determining such general questions as the antiquity of man; monogenism or polygenism; the geographical centre or centres of evolution and dispersion; the number and essential characteristics of the fundamental human types; the absolute and relative value of racial criteria: miscegenation; the origin and evolution of articulate speech and its value as a test of race; the influence of the environment on the evolution of human varieties, on their pursuits, temperament, religious views, grades of culture; the evolution of the family, clan, tribe and nation.

Scope of Ethnology.

In thus defining the scope of ethnology, terms have been used which themselves need definition, and all the more that the meaning of some, such, for instance, as *race*, *clan*, *tribe*, still gives rise to constant, often to angry, discussion, amongst writers on ethnological subjects. It is no exaggeration to say that many stout volumes might have been spared, had a common understanding prevailed regarding the strict sense of the current terminology when the foundations of the science were being laid some few decades ago. But in speculative branches of research first principles cannot be established by deductive process *a priori*; they are rather the natural outcome of the inductive method based on cumulative evidence *a posteriori*.

Ethnological nomenclature.

Ethnological studies have now reached that stage at which it seems possible, and therefore desirable, to determine the exact meaning of the general terms in common use. Such terms as *genus*, *species*, *variety* need not here be discussed. They belong to all branches of biology, and their meaning is clearly defined in a way that gives rise to no misunderstandings. For the ethnologist there is merely

General terms in common use.

den Gheyn aptly observes that here "l'ethnographe ne se distingue pas essentiellement de l'anthropologiste, de l'archéologue, du linguiste, du psychologue" (*Revue des questions scientifiques*, October 1885).

the question whether the Hominidæ constitute so many species of one genus, or only so many varieties of one species, as will be discussed in Chapter VII.

Of strictly ethnological terms there are two distinct categories, one implying affinity or blood relationship of some sort, or at least such close resemblance as points at genetic descent from common ancestry, the other involving no such assumption, vague and indefinite, but therefore in certain cases all the more convenient, and indeed indispensable wherever no theories of kinship are involved. Each has thus its proper place, and it should be specially noticed that although the terms of the definite class are mostly convertible with those of the indefinite, the latter are not to the same extent interchangeable with the former, as will presently appear :—

Definite and Indefinite Terms.

Definite Terms (involving or suggesting the idea of kinship).	Indefinite Terms (indifferent to the idea of kinship).
Race.	*Division.*
Clan.	*Section.*
Tribe.	*Group.*
Family.	*Horde.*
Totem.	*Nation.*
Branch.	*People.*
Stock; Stem.	*Population.*
Type.	*Inhabitants.*

After assigning their proper limits to the various branches of general Anthropology, Broca sums up with the remark that "ethnography studies peoples, ethnology races." Here a sharp contrast is drawn between the definite term *race* and the indefinite *people*, a contrast entirely in accordance with the nature of the two subjects. It is obvious from the foregoing remarks that ethnography can have nothing to do with *race* as such, for this term, taken in its strictest sense, involves common descent from an original stock, and is therefore essentially a question of blood. It answers to the *breed* and *strain* of cattle-farmers and bird-fanciers, and is therefore applicable

Race.

only to groups of individuals sprung, or assumed to be sprung, from one and the same original family.

But mankind has been so long on the earth, and has been subject to such endless migrations, displacements and interminglings of all sorts, that in the opinion of many sound ethnologists few if any pure races now survive. Hence the word comes to be used somewhat hypothetically. Certain abstract ethnical types are assumed or inferred from a general survey of the Hominidæ, and the various human groups are classed together or discriminated according as they approach or diverge from these abstract types. Hence at present race has rather a relative than an absolute value, and Topinard regards the word as no more than "permissive" in ethnology. He looks upon it as synonymous with the natural divisions of the human family, however remote the period at which such divisions were constituted.

Race, Species and Variety.

For Prichard race is a collection of individuals presenting more or less common features transmissible by succession, in fact, what would now be called "permanent varieties," the origin of the characteristics themselves being an unsettled question. Pouchet also regards race as practically synonymous with species. Hence the word will have a different meaning according to the different views entertained on the question of the unity or plurality of mankind. For those who hold that all the Hominidæ form but one species, there can be but one fundamental race, and the current groupings are strictly speaking unscientific, however convenient and even necessary for the detailed study of the human family. It may be concluded with Darwin that, at the initial stage of their evolution, races having a common origin are varieties of a given species, which tend themselves to become species. Hence on the assumption that the varieties of the Hominidæ have not yet reached this stage, the expressions *human varieties* and *human races* are practically synonymous, and will be so taken in this work.

Clan.

Under race come the *tribe* and the *clan*, which terms also involve kinship even in a narrower sense, being properly subdivisions of the race or family groups connected by the ties of blood and recognising a common social

organisation whether under hereditary or elected chiefs or elders. This organisation, which has been diligently studied by Morgan and others in recent years, throws much light on the origin of human societies; in the hands of these writers it has acquired such expansion, that it can no longer be adequately treated within the limits of ethnology proper, and it now forms the basis of *Sociology* which has been raised by Mr Herbert Spencer to the rank of a separate science.

The Clan system of kinship.

Here we are concerned only with the difference between the clan proper and the tribe. In the clan system descent was probably at first reckoned only through the female line; consequently uterine ties alone constituted kinship, the father not being regarded as related even to his own children, and not considered as a member of the family, as still amongst the Chi (Tshi) people of the Gold Coast and elsewhere. In this system all the children bear the clan-name transmitted through the mother, and the clan-name thus becomes the test of blood-relationship. But the moment descent is recognised through the male line also, as amongst the Yorubas of the Slave Coast, the clan system breaks down, and the clan merges in the tribe. This point, hitherto one of the puzzles of ethnology, has been cleared up by the late Col. A. B. Ellis, who remarks that "since two persons of the same clan-name may, under the clan-system, never marry, it follows that husband and wife must be of different clans. Let us say that one is a Dog and the other a Leopard. The clan-name is extended to all who are of the same blood; therefore, directly the blood-relationship between father and child comes to be acknowledged, the children of such a pair as we have supposed, instead of being, as heretofore, simply Leopards, would be Dog-Leopards, and would belong to two clans. They in their turn might marry with persons similarly belonging to two clans, say Cat-Snakes, and the offsprings of these unions would belong to four clans. The clan-system thus becomes altogether unworkable, because, as the number of clans is limited and cannot be added to, if the clan-name still remained the test of blood-relationship and a bar to marriage, the result in a few generations would be that no marriages would be possible. Consequently the clan-name ceases

to be the test of consanguinity, kinship is traced in some other way, and the clan-system disappears[1]."

It is thus seen that the tribe is not merely a group of clans, but that its constitution becomes profoundly modified by the gradual substitution of patriarchal for matriarchal rights. During this process the exogamous[2] unions, necessary in the clan system to avoid the fatal results of too close in-breeding, are continued through force of prescribed usage, the consequence being a general weakening of the ties of blood, on which the clan was exclusively based. The infusion of foreign elements is later increased by inter-tribal wars, abduction and the capture of women and children. Hence, although the idea of consanguinity persists, the tribe, as it expands, depends more and more on common social and political institutions, and less on actual kinship. Doubtless the foreign elements, entering slowly, are in great measure slowly absorbed, so that the physical characters of the group are long maintained almost intact; but the time comes when there is no longer any "necessary correlation between the social unit which we call a tribe and the physical unit which constitutes the characteristics of the individuals of a certain region[3]."

The Tribe evolved from the Clan.

It is, however, to be noticed that during the early period of human society the interminglings were necessarily between closely allied communities, such as the Italic Latins and Sabines, so that the racial integrity would be little affected by such incidents as the "rape of the Sabines"; hence the tribe amongst peoples at a low grade of culture is still commonly taken as a consanguineous group in ethnological writings. Beyond the exact sciences most things are relative, and we live in a world of compromise[4]

[1] *The Yoruba-speaking Peoples of the Slave Coast*, 1894, p. 175.

[2] Gr. ἔξω = outside; γάμος = marriage. The convenient term *exogamy*, first proposed by McLennan, implies the custom of seeking a wife outside the tribe, and is thus opposed to *endogamy* (Gr. ἔνδον = within), marriage within the tribe, assumed to be a later development.

[3] Dr Franz Boas, *Anthropology of the North American Indians*, reprinted from the Memoirs of the International Congress of Anthropology at Chicago (1893), p. 38.

[4] *Tribe* (Lat. *tribus*) has been referred to an Aryan word *trapâ*, which

Family a class term.

At the base of the tribe is the *family*, which is the irreducible unit of the clan, but which in Anthropology is also taken in a wide sense, though always so as to imply consanguinity. No difficulty is presented by this larger use of the word, which is applicable to any great division comprising a number of more or less closely allied sub-groups. Thus all mankind may be regarded as a family forming one of the five sub-groups of the anthropoidea. Similarly the primary, and even lesser divisions, of the hominidæ may be spoken of as so many families in reference to the whole group, and so on.

Family the social unit,

But in its narrower sense no word has given rise to more angry discussion than the family, taken as the starting point of all human society. It involves such questions as original promiscuity, various kinds of polyandry, and polygamy as antecedent to monogamy. Here it will suffice to state that the assumption of primitive promiscuity advocated by so many recent ethnologists is neither necessary nor even probable. The views of McLennan and Morgan, which are supposed to hold the field at present, have been sharply criticized by Horatio Hale[1], and by Edward Westermarck of Helsingfors (Finland) in his able treatise on *The Origin of Human Marriage* (1890), where the conclusion is arrived at that "in all probability there was no stage of human development when marriage did not exist, and the father always was, as a rule, the protector of his family. Human marriage

its origin.

Hale's and Westermarck's views.

survives in the Gothic *thaurp*, whence *thorp*, Ger. *dorf*. If the equation be correct, this word meant originally nothing more than a village group or community, whereas the *clan* was always associated with the idea of kinship; hence Ir. or Gael. *clann* = offspring, descendants; and *kin*, *kind* are the Sanskrit *janana*, Gr. γένος, Lat. *gens*, Old German *Chunni*. The word *mankind* itself is the Anglo-Saxon *mancynn*, implying the ultimate kinship of all the human family.

[1] In *Language as a Test of Mental Capacity*, from the Transactions of the Royal Society of Canada (1891), where this ethnologist rejects the cattle-herding theory, holding with Darwin that, from the first, man was a pairing animal.

seems to be an inheritance from some ape-like progenitor" (p. 64)[1].

Family life amongst the Anthropoid Apes.

In confirmation of this statement it may be pointed out that most if not all of the Simiidæ, man's nearest akin, live either in family groups or in small parties of several families, and construct arboreal shelters where the female and young pass the night. It is noteworthy that the male gorilla is said to sleep at the foot of the tree, while the chimpanzee occupies a forked branch below the family resting-place, thus illustrating various stages in the evolution of the family life. Some of the New Guinea and Sudanese aborigines also build arboreal habitations, in which all the members of the family reside, or take refuge from more powerful hostile neighbours[2]. The social unit is thus reached by the natural process from below, and not with Prof. T. H. Green by implication from above. "If asked by what warrant we carry back the institution of the family into the life of the most primitive men, we answer that we carry it back no farther than the interest in permanent good. From beings incapable of such an interest, even though connected by acts of generation [genetic ascent?] with ourselves, we cannot in any intelligible sense have been developed[3]." Those who have studied these questions *in situ* never reason in this way. They know that "primitive men" have no thought for "permanent good," though fully aware of the present advantages derived from association. It is well understood even by the Fuegians, who form family groups, but have not yet reached the clan state, as shown by the absence of totems, the children being named neither from the father's nor from the mother's side, but only from the place of birth. Thus all will have the same name if born in the same place, and all will have different names if born in different places[4]. Here there is no

[1] This work, which is written in sterling English, is of a fundamental character, and deserves to be better known than it appears to be in the English-speaking world. But the subject is so vast, that it may almost be said already to form a separate branch of the anthropological sciences intermediate between ethnology proper and sociology.

[2] Nachtigal, *Sáhara und Sudan*, II. p. 628.

[3] *Prolegomena to Ethics*, § 231.

[4] "I figli non portano il nome dei genitori ma prendono i nomi delle località

clan, tribe, or government of any kind, but the family exists everywhere.

Totemism.

Intimately connected with the primary social division is the vexed question of *totemism*[1], which Lubbock and Spencer trace back to the general practice of naming persons after plants and especially animals—Deer, Bear, Turtle, &c.—these animals thus in certain cases becoming hereditary family and clan names. But Dr E. B. Tylor, perhaps the first authority on all questions of primitive culture, warns us that "while granting such a theory affords a rational interpretation of

Origin of the Totemic system.

the obscure facts of totemism, we must treat it as a theory not vouched for by sufficient evidence, and within our knowledge liable to mislead if pushed to extremes" (*Prim. Culture*, II. p. 215). It is nevertheless now commonly assumed with McLennan (*Fortnightly Rev.* 1869—70) that all or nearly all peoples have passed through this totem-stage of human society. In its present aspect the totemic system is thus set forth by Col. Garrick Mallery: "An animal or a plant, or sometimes a heavenly body, was mythologically at first, and at last sociologically, connected with all persons of a certain stock, who believe or once believed, that it was their tutelar god, as they bear its name. Each clan or gens took as a badge or objective totem the representation of the tutelar daimon from which it was named. As most Indian tribes were zootheistic, the object of their devotion was generally an animal, e.g. an eagle, a panther, a buffalo...a snake or a fish, but sometimes was one of the winds, a celestial body, or other impressive object or pheno-

dove nascono...Quindi dieci figli, che nascono in dieci luoghi differenti, hanno dieci nomi diversi" (Dr Domenico Lovisato, *Appunti etnografici...sulla Terra del Fuoco*, Turin, 1884, p. 34). It is noteworthy that in this lowest known form of the family group, it is not the mother but the father that rules, showing that matriarchy need not necessarily have preceded patriarchy, as is too readily assumed from the study of more advanced social systems wrongly called "primitive."

[1] From the Algonquian word *totem*, the proper form of which appears to be *otem*, the distinctive badge carefully guarded by each member of the clan (Cuoq, *Études philologiques sur quelques langues sauvages de l'Amérique*, quoted by Reclus, XV. p. 480, French ed.).

menon[1]." This view may perhaps be accepted, on the condition of reversing the process of evolution. We are too apt to read into the primitive mind our own elevated thoughts on the relations between the natural and supernatural orders; else it would be seen that the "sociological" must have preceded the "mythological" stage. Hence the belief that the totem was "a god" or "tutelar daimon," must be regarded, so to say, as an afterthought, evolved when the savage mind had become capable of such a lofty conception. Palæolithic man for instance, was certainly not a "zootheist," or a "theist" of any kind; yet the Dordogne "artists" or the Derbyshire cave-dwellers may well have had their family names derived from the surrounding fauna and other sources, for, as shown, they were *ab initio* constituted in family groups. The mistake here made is somewhat analogous to that of the missionary who deified the *augad* (totem) of the Mabuiag Islanders (Torres Strait), translating the Son of God (Mark i. 1) by the words *Augadau kazi*, literally "the Totem's Son." The expression remains unintelligible to these Papuans, whose totems are still merely family names (crocodile, snake, shark, &c.), and have not even reached the rank of demons, much less that of the Supreme Being. But the generally received theory adapts itself fairly well to the present relatively advanced stage of those primitive cultures which have here and there somewhat dimly grasped the idea of anthropomorphic genii powerful for good or evil, mostly evil.

Branch, Stock, Stem.

The terms *branch*, *stock* or *stem*, being borrowed from the "family tree," always imply close kinship, and their use should give rise to no ambiguity. But words of such precision have necessarily less currency in anthropological than in linguistic studies. This is well seen in Powell's classification of the North American Indians (Washington, 1891), where the expression "stock language" is always intelligible, whereas "stock race" has to be used with great reserve. The philologist has no doubt at all about the radical difference between, for instance, the Iroquian and the

[1] *Picture-writing of the American Indians*, in *Tenth Annual Report of the Bureau of Ethnology*, Washington 1893, p. 388.

Algonquian stock languages, while the anthropologist scarcely admits two distinct Iroquian and Algonquian physical types. Much of the confusion pervading most ethnological treatises arises from inattention to this fundamental contrast between ethnical and linguistic relations, as will presently be seen.

Type an abstraction.

Type stands apart from all other general terms in ethnological nomenclature. It is not a race, a tribe or a family, or any concrete division whatsoever; but is rather in the nature of an abstraction, a model or pattern to which all possible divisions are referable. Originally meaning a mould or matrix, or rather a casting from a mould[1], it is taken as a summary of all the characters assumed to be proper to a given class or group. Thus type becomes the standard by which we measure the relative position of individuals in a group. But in practice no individual exists, or ever did exist, who is entirely conformable to any given standard. Hence type necessarily resolves itself into a question of averages; individuals possessing most of the characters peculiar to a group are said to be typical members of that group, and even this only in a relative sense. They approximate nearer than other members to the ideal, but none absolutely reach it. There is, for instance, no perfect embodiment of the Caucasic or of the Mongolic type, and it has been well remarked that "a large proportion of mankind is made up, not of extreme or typical, but of more or less generalised or intermediate forms[2]."

Exaggerated specimens, hypertypes, as they are called, do however occur, but only in one or two respects; such are the Fijian Kai Colos, who are said to be "hypertypical Melanesians," because of the excessive dolichocephaly of their crania (*Flower*). But it would be rash to assert that these aborigines, of whom little is otherwise known, are even typical Melanesians in every respect. Other forms of the word, such as proto-type, sub-type, etc., explain themselves.

Type also a concrete term.

But it should be noted that in its simplest form type is also occasionally used in a concrete sense, as when we say that the Ba-twa are a type of the African Negritoes, meaning that they are typical

[1] Gr. *τύπτω*, to strike, hence a stamp or distinguishing mark.

[2] Flower and Lydekker, *Mammals living and extinct*, p. 744.

negritoes. This use of the word, however, often gives rise to misunderstandings, which, as observed by M. Sanson, might be avoided by using the more definite expressions "racial type," "specific type," and so on[1].

Most of the Indefinite terms also explain themselves, and with ordinary care can scarcely lead to any misunderstandings. The chief point to observe is that the definites and indefinites are not necessarily interchangeable, because the latter do not connote or involve the attributes of the former. Thus a branch is always a division, section or group; but divisions, sections or groups need not be branches. The Melanesians are a branch, section or division of the Negro stock; they are also a section or division, but not a branch, of the Oceanic peoples, who do not form a family group. The Kipchaks may be called a tribe or a horde indifferently of the Usbeg branch of the Turki race; but they are a horde only of the Mongolo-Turki nomads, their affinities being with the Turki, not with the Mongol division.

The Indefinite terms.

Horde, from *yurt*, *urdu*, a tent, then a group of tents, camp, host, army, differs from tribe, in that it implies no kinship, but only a group of nomads brought together for predatory or other purposes. Many of the "Tatar hordes" were not Tatar (Mongols) at all, but of Turki stock. The Sudanese Sofas, are not a "tribe," as they have been described, but a horde, a band of riff-raff from all the surrounding tribes (Mandingans, Fulahs, Bambaras and others), brought together by Samory to war against the French in the Upper Niger basin, and to raid the land for slaves and plunder (1893–95). This is the obvious historic and general ethnological use of the term *horde*, which has to be made the starting point of human society only by those writers who with M^c^Lennan evolve order out of "promiscuity." "If we may properly dismiss the term family as a scientific appellation for the earliest group of human beings, and if we may consistently call it the horde, borrowing the term from M^c^Lennan, we shall, at least,

Horde.

[1] *Bul. de la Soc. d'Anthrop.* June—Oct. 1889, p. 400. All will agree with this naturalist that "il y aurait avantage à ne pas se servir, dans le langage anthropologique, d'expressions vagues qui ne servent qu'à obscurcir les idées" (ib.).

be clearing the way to prevent a misconception from a confusion in terminology[1]." Here *horde* is taken as practically synonymous with *herd*, and "confusion" would be better avoided by frankly making the substitution. Then horde will recover its historic significance, and M°Lennan's "*Theory of the Primitive Human Herd*" will at least have the merit of putting the point at issue in intelligible language. This "cattle-herd" theory is a pure assumption, an unscientific deduction, based on blank ignorance of facts that can never be known until the social life of eolithic man is recovered. The nearest analogous case is the social life of the higher apes, who, as seen, do not herd together, but live in family groups. But the less is known about these relations, the thicker the tomes devoted to their exposition.

Through the horde the tribe expands into the *nation* and *people*, where the idea of race or kinship is destroyed by universal mixture. The nation comprises all the inhabitants of a given region subject long enough to one political system to have acquired a certain outward uniformity, a common standard of social usages, interests, aspirations, generally also language, literature and religion. But although not involving common origin, it tends towards ethnical uniformity or unity, by the gradual fusion of diverse elements in a uniform type. Some nations, such as the Swedes, have in great measure acquired such uniformity, and with them race and nation become practically convertible terms. People is a still more elastic expression, and may be taken to comprise in the singular all the uncombined sections of the nation, in the plural an aggregate of nations remotely connected by vague traditions, allied languages and especially a common social culture. Thus we speak of the "Hungarian people," an expression which includes the Ugrian Magyars, the German Transylvanians, several Slav groups, the Rumanians of Latin speech, and others scarcely yet merged in a common nationality although living under a common political administration. So also the wider expression "European peoples" embraces many nations mostly of Aryan speech and culture.

Nation.

People.

[1] G. L. Gomme, *Jour. Anthrop. Inst.* 1888, p. 119.

The foregoing remarks may be illustrated by the following example, in which the definite and indefinite terms are in italics: Dr Oronhyatekha, who visited England in 1894, is a *typical* member of the Turtle *clan* of the Mohawk *tribe*, who are a *branch* of the Iroquois *nation*. The Iroquois themselves, who speak a *stock* language, form an important *section* of the American *variety* of the Hominidæ, that is, of the human *family* in the sub-order Anthropoidea of the order Primates.

Example illustrating the use of the definites and indefinites.

CHAPTER II.

PHYSICAL EVOLUTION OF MAN.

Man's Place in the Animal Kingdom—The Primates—Old Divisions: Quadrumana and Bimana—New Divisions: Lemuroidea and Anthropoidea—The five families of the Anthropoidea—Their range in time and space—Diagram of the Anthropoid families—Relations of the family Hominidæ to the family Simiidæ—Comparative Table of the Simiidæ and Hominidæ: Gibbon; Orang; Gorilla; Chimpanzee; Dryopithecus; Hominidæ—Points of resemblance to and difference from the Simiidæ—Origin of Man by Creation or Evolution—Creation Theory inadequate—Evolution Theory adequate—Natural and Supernatural views reconciled—Difficulties of the progressive evolutionist theory—Views of de Quatrefages, de Mortillet and Sergi—The Castenedolo Man—Sergi's Tertiary Hominidæ—Quaternary Man—Cannstadt Man rejected—Neanderthal affirmed—The Quaternary Hominidæ—Kollmann's Dauertypus—Persistence of primitive types—Views of French, English and American Anthropologists—Difficulties of the Dauertypus theory—Analogy of the Equidæ—Their evolution—Sergi's Tertiary Hominidæ rejected—Persistence of, and Reversals to, primitive types reconciled with evolutionary teachings—Comparative Diagrams of Pleistocene Hominidæ and Equidæ—Broad stages of physical evolution from a postulated Anthropoid Miocene precursor.

Man's place in the animal kingdom.

AT the end of the foregoing Chapter man's position in the animal kingdom was determined from the purely zoological standpoint. That he is an animal, and as such must be related to other animals, is no discovery of modern science. Even the schoolmen defined him as *animal rationale*, a definition which the ethnologist may accept without hesitation as at least partly true. What modern science has done is to give precision and completeness to this definition, by fixing the place of man as an animal in the class of mammals, and by separating him, mainly in virtue of his exclusive possession of articulate speech, from other animals to whom the reasoning faculty can scarcely be denied. Man will accordingly here be

considered as a rational animal possessing the faculty of articulate speech.

The Primates.

Zoologists detach from the Class Mammals the large and widespread group of Apes and Half-Apes (Lemurs), which in all modern systems constitute the independent order *Primates*, so named by Linné because viewed as a whole they are the chief or most highly specialized members of the class. Cuvier made two divisions of the Primates, the *Quadrumana* or "four-handed," comprising all the Apes and Half-Apes, whose four extremities are more or less prehensile, and the *Bimana* or "two-handed," comprising the single genus *Homo*, that is, man alone, whose two anterior extremities are prehensile (true hands), while the two hinder are true feet. But these terms, after playing a large part in anthropological writings, have fallen into disuse, being not only unsatisfactory but even misleading. "Anatomically the foot of apes agrees far more with the foot of man than with his hand, and similarly the ape's hand resembles man's hand and differs from his feet. Even estimated physiologically, or according to use, the hand throughout the whole order [Primates] remains the prehensile organ *par excellence*, while the predominant function of the foot, however prehensile it be, is constantly locomotive. Therefore the term *Quadrumana* is apt to be misleading, since anatomically both apes and man have two hands and a pair of feet[1]."

Old divisions.

Quadrumana and Bimana.

Excluding the Bats, which had been classed by Linné with the Primates, recent systematists split the Order into the two suborders *Lemuroidea* and *Anthropoidea*, and subdivide the Anthropoidea[2], that is, the "man-like forms" into five families, of which the *Hominidæ* constitute the fifth. Of the other families two,

Present divisions:—suborders Lemuroidea and Anthropoidea.

[1] St George Mivart, *Man and Apes*, p. 88.

[2] Gr. Ἄνθρωπος and εἶδος = form, shape; hence in the shape, form or likeness of man. The term εἶδος as a suffix has a wide application in ethnology, in which it serves to distinguish between groups conformable to and more or less divergent from a given type. Thus: the Ashanti are true *Negroes*, whereas the Zulu-Kafirs are rather *Negroid*. So *Mongoloid*, *Caucasoid*, *Australoid* and so on.

The five families of the Anthropoidea.

Family Simiidæ (highest apes), their range in time and space.

Hapalidæ (Marmosets) and *Cebidæ* (American monkeys) are exclusively confined to the New World, while the two others, *Cercopithecidæ* (baboons, macaques and other apes generally long-tailed), and *Simiidæ* (Gibbon, Orang-utan, Anthropopithecus or Chimpanzee, and Gorilla, all tailless) are confined to the tropical and temperate regions of the Old World. The range of the Simiidæ is still further restricted at present to the tropics, Gibbon and Orang to Indo-China and Malaysia, Chimpanzee and Gorilla to equatorial Africa. But in former times they extended far beyond these limits, the fossil remains of a true Chimpanzee *Palæopithecus* or *Anthropopithecus sivalensis*) having been found in the pliocene of the Panjab, an extinct Gibbon (*Pliopithecus*) in the Middle Miocene of France, and in the same geological formation a somewhat generalized Simian (*Dryopithecus*) approximating nearest to the Chimpanzee, but also showing affinities to the Gorilla, and even to the Cercopithecidæ. But it should be remembered that in the Miocene, and generally before the first ice-age of which there is any evidence, the tropical zone extended far beyond its present limits, and certainly comprised all the regions where these fossil apes have been found (see p. 22, 24). Hence it is impossible to infer from their remains that the Simiidæ at any time lived in colder climates than that of their present equatorial habitat.

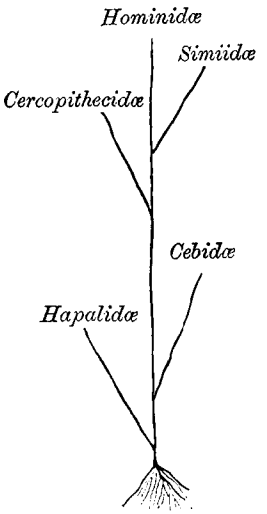
It is important to note that man has points of contact with all these genera of the Simiidæ, as well as with the other families of the suborder[1], and further that "the differences between man and the Anthropoid apes are really not so marked as those which separate the latter from the American monkeys[2]." His position in the suborder is placed in a clear light in the accompanying diagram of the five families, where the distance between the Hominidæ

Diagram of the five families of the Anthropoid suborder of Primates.

[1] So marked are the links with the half-apes that some zoologists trace man directly from the suborder Lemurs without passing through the line of anthropoids at all. This view, however, seems somewhat paradoxical, and does not appear to have been taken seriously by specialists.

[2] Flower and Lydekker, *op. cit.* p. 740.

and the Old World anthropoids is less than that between the latter and the two New World groups:—



GENERALISED ANTHROPOID FORM.

Relations of man to the Simiidæ.

It is popularly supposed that, according to evolutionary teachings, man is "descended" from the Gorilla, or the Chimpanzee, or from some other member of the Simiidæ, his nearest congeners. But no sane evolutionist holds such a doctrine, and from this diagram it is made evident that the ascent of the Hominidæ is in an independent line from some long extinct generalised form, from which the other branches also spring in independent lines. All have some features in common, while each presents some special characters, the source of which is to be sought partly perhaps in a common precursor, but mainly in their independent development along divergent lines of growth. At the same time the points of resemblance between the Hominidæ and the Simiidæ are far more numerous than between the Hominidæ and any other group, from which it may be inferred that the divergence of the higher groups really took place in the sequence indicated

in the diagram. Hence for the ethnologist the study of man from the physical side is naturally confined to his position in respect of the higher apes. These alone are consequently included in the subjoined Table, in which those points only are indicated that have a more or less direct bearing on the relations of the Hominidæ to the Simiidæ[1].

Comparative Table of the five genera of the Simiidæ and of the family Hominidæ.

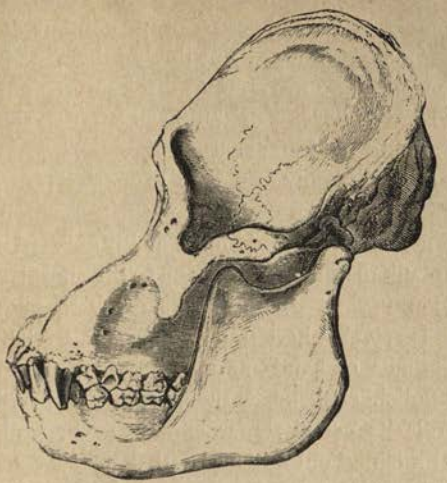
GIBBON (*Hylobates*): Range, Indo-China and Malay Archipelago; Species, Siamang (*Hylobates syndactylus*), of Sumatra, largest (3 feet high), and specially remarkable for its well-developed chin, in this and its wide chest approximating nearer to man than any other ape; Hoolock (*H. hoolock*) of South Assam and Upper Irawady Basin, with distinctly aquiline nose; White-handed Gibbon (*H. lar*) of Tenasserim and Malaysia; Dun-coloured Gibbon (*H. entelloides*) of Malaysia; Tufted Gibbon (*H. pileatus*) of Siam and Camboja; the extinct *Pliopithecus* of the Middle Miocene of France. The Gibbons are the only apes that habitually walk erect, with a quick waddling gait, resting on the hind feet alone with sole planted flat on the ground, great toe wide apart, and the disproportionately long arms held upwards, sometimes horizontally. Voice much like man's at a distance—a peculiar wailing note and a double call (*hoo-lock*). Dorsal vertebræ 12 to 14; ribs 7 to 8 on each side with angles more marked than in any of the other genera except man; slender figure.

Gibbon.

ORANG-UTAN (*Simia*): Only two known species of which *S. satyrus* is confined to Borneo and Sumatra; red-haired; male 4 ft. 4 in. high, bulky body, extremely short legs, and long arms reaching when erect down to the ankles, walks slowly and deliberately, resting on the knuckles of the hands and the outer sides of the feet, the soles being turned mainly inwards; habits arboreal; nests of boughs and leaves; food exclusively vegetable. The reddish-brown hair covers the whole body, and in adult males forms a well-developed beard; thumb and great toe very short; dorsal vertebræ 12 as in man; 12 pair of ribs; brain much convoluted and more human-like than in any

Orang.

[1] Data mainly from Flower and Lydekker, *op. cit.*



SKULL OF ORANG.

ORANG-UTAN.

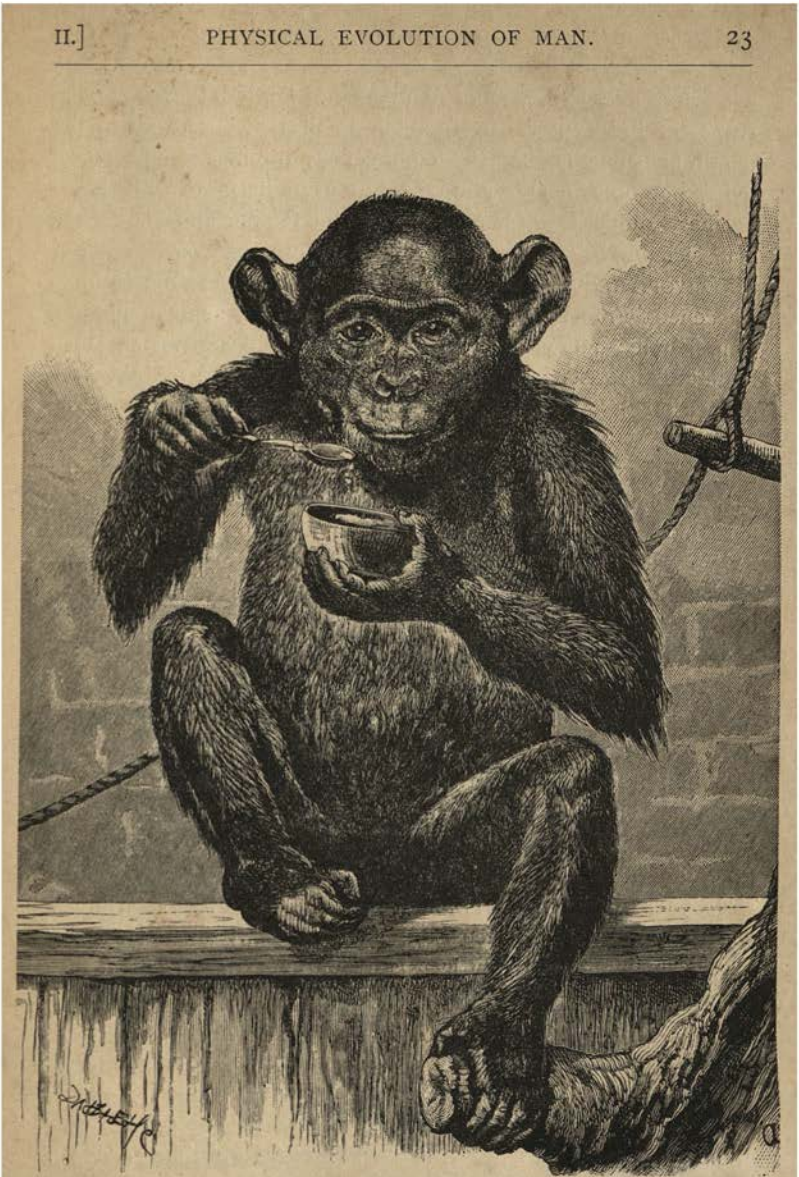
other ape; skull highly vaulted and brachycephalic; superciliary ridges moderately developed and not prominent as in Gorilla; canine teeth of male very large; lips thicker than in any other ape. Remains of a species of Orang (a broken canine) have been found in the Lower Pliocene of the Siwalik Hills, showing former range northwards to the Himalayas.

GORILLA (*Gorilla*) only one known species (*G. savagei*) confined to West Equatorial Africa, between the Cameroons and Lower Congo river; massive body and limbs thickly covered with blackish hair; larger in bulk than man, but owing to the short legs never over 5ft. 6in. high; in upright position arms reach to middle of lower leg; very short thumb, great toe relatively longer; digits of hands and feet partly united by integument; skull dolichocephalic, with enormous superciliary arches, giving the gorilla its peculiarly ferocious aspect; canines of male very large and inclined outwards in both jaws; ear small but well developed, with a rudiment of the human lobe; orbits also more human in shape than in other apes; dorsal vertebræ 13, as in chimpanzee; wrist lacks the *os centrale*, as in chimpanzee and man; brain convoluted like that of orang, but otherwise approximates nearest to the human type, from which it differs only in its inferior size and weight and in the more symmetrically convoluted cerebrum, which is less complicated with secondary and tertiary convolutions. The gorilla walks with backs of closed hands and flat soles planted on the ground; voice a deep guttural sound, varying from a grunt to a roar; lives in family groups, female and young passing the night in the trees, at foot of which the male is said to sleep; he is much larger than his mate, and tends to turn greyish in old age.

Gorilla.

CHIMPANZEE (*Anthropopithecus*): Two known species (*A. troglodytes* and *A. calvus*), ranging over inter-tropical Africa, besides the extinct *A. sivalensis* of the Pliocene of Northern India; both sexes much alike, the chief difference being the larger canines of the male: extreme height 5 feet; colour blacker than in gorilla and ears relatively larger, but arms shorter, reaching only a little below the knee; the Chimpanzee comes nearest to man in this as in some other respects, such as the better developed thumb and great toe, presence of whiskers,

Chimpanzee.



CHIMPANZEE.

eye-brows and lashes, more rounded and far less rugged coronal region of the skull, relatively much smaller canines, and in the dentition generally; is also more gentle, intelligent and social, living not only in family groups, but even in parties of several families; builds arboreal shelters for the female and young, the male sleeping lower down, according to some observers.

DRYOPITHECUS, an extinct anthropoid from the Middle Miocene of France, same size as and apparently nearest allied to, Chimpanzee; figures largely in ethnological writings, being taken by certain theorists as the precursor of man in Europe. But Dryopithecus appears to represent a more generalised member of the family, that is, an earlier and simpler type from which the four living genera of Simiidæ and the family Hominidæ may have ascended. Consequently Dryopithecus must have been farthest removed from man in time, and must have possessed fewer properties of a specially human character. Between it and man many more gaps would have to be bridged than, for instance, between Chimpanzee and man. But, as above shown, man cannot be derived directly from Chimpanzee; how much less from Dryopithecus! So much may be inferred from what little is known of this fossil, which is represented only by a single species, whose dentition stands at a stage of evolution intermediate between the Cercopithecidæ and Gorilla, consequently lower than that of all the Simiidæ. "A gradual transition in the form of the mandible may, indeed, be traced from Dryopithecus, through Gorilla, to Anthropopithecus" (Flower and Lydekker); and this is all that can be said for the "human characters" of Dryopithecus, on which so many fanciful theories have been built. How little it is may be seen from the fact that, although the mandible (lower jaw) of Anthropopithecus (Chimpanzee) approximates in some respects to the human, it does so in less degree than that of the gibbon, which on the whole is the least human of all the Simiidæ. In any case it would have to be shown that the later evolution of Dryopithecus proceeded rather in the direction of Hominidæ than of Simiidæ; in the absence of intermediate forms, there is of course no evidence of this. The same remark will apply to *Pithecanthropus erectus* discovered (1894) in Java (p. 144).

Dryopithecus.

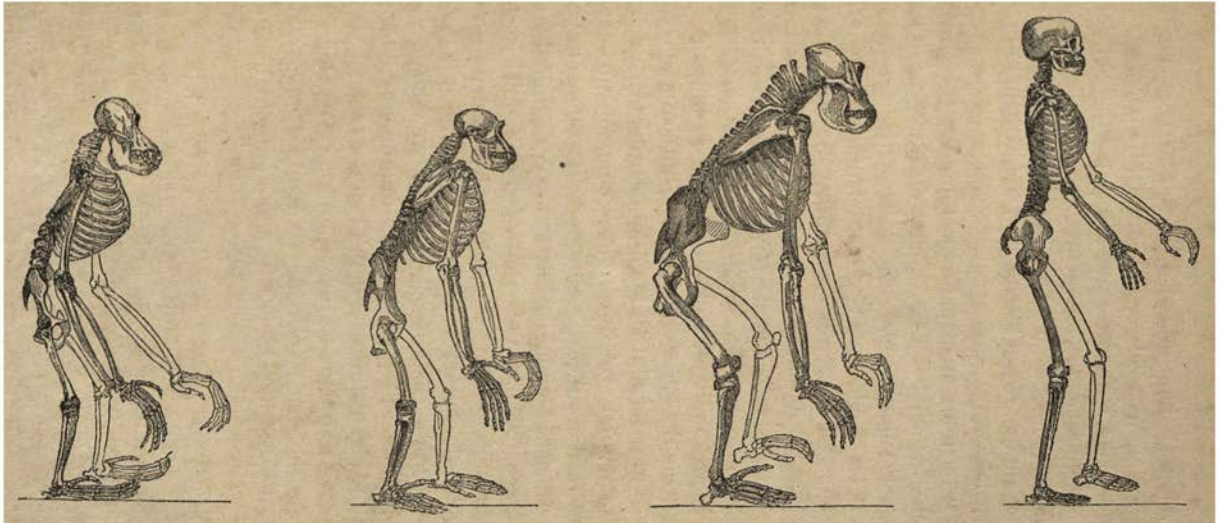
HOMINIDÆ. (Linné's Genus *Homo*), with no specific divisions, but four primary varieties, all connected by endless intermediate forms or sub-varieties; spread over all or most of the habitable world from Pleistocene times: *Homo Æthiopicus* (Negro), most of Africa and Australasia; *Homo Mongolicus*, most of Asia and Malaysia, parts of Europe; *Homo Caucasicus*, most of Europe, parts of Asia and Africa originally, later everywhere; *Homo Americanus*, all the New World. The Hominidæ.

Main points of resemblance with the Simiidæ in physical structure: 1. The general *anatomical structure*, the framework of all being cast on the same lines, so that all may be conceived as merging or tending to merge one in the other, although at present the primary groups are not united by any intermediate forms. 2. The complete disappearance of the *tail* in all, nothing remaining except a few caudal vertebræ, invisible in the living subject; hence the folly of the quest for "tailed men," all reports regarding whom (Borneo, Equatorial Africa) may be dismissed as fabulous. If no species even of genus Gibbon can show any external trace of this appendix, it cannot be expected in any variety, however low, of the Hominidæ, by far the most specialised group in the suborder. 3. The two anterior and the two hinder *extremities* fairly well developed throughout as true hands and feet respectively. 4. *The dentition*, which as regards the number and sequence of the teeth is the same in all the Old World Anthropoidea as in man. 5. *Ear*, universally well developed, but lobeless in the Apes, Gorilla alone showing a rudiment of the human lobule. 6. *Brain*, which in form and general structure is much the same in man and Apes. 7. *Hyoid* bone. 8. *Liver*. 9. *Cæcum*, all identical. Resemblances to the Simiidæ in structure.

Main points of difference from the Simiidæ:—1. *Brain*, absolutely as well as relatively much smaller in all apes than in man; highest cranial capacity of Orang and Chimpanzee, which in this respect approximate nearest to the human, 26 and 27½ cubic inches respectively; lowest normal in man 55. 2. *Brain-case*, much larger in man relatively to the facial part of the skull. 3. *Vertebral Column*, completely adapted in man alone to the erect position, being curved doubly so as to perfectly balance the head. 4. *Legs*, Points of difference from the Simiidæ.

much longer in men than in apes relatively to the arms. 5. *Great toe*, longer in man, and not opposable to the other digits. Although this is one of the most marked differences between the two families, it is not a strong zoological character, since it depends on a slight change in the form of a single bone (the entocuneiform); in the human embryo also the hallux (great toe) is opposable till the fourth month[1]. 6. *Nose*, well developed in man, very slightly prominent in the Apes, except the Hoolock Gibbon, in which it is aquiline. 7. *Dentition*, forms in man alone an uninterrupted series of horse-shoe shape, without prominent canine teeth; but the canines of the lower and higher races differ, the crown of the former being larger relatively to the neck, and terminating, like those of the Apes, in a sharp point, usually much worn (F. Regnault). 8. *Chin*, developed in man alone, though in one Gibbon (Siamang) the union of the mandibles forms a slight projection like the human chin. On the other hand "there is no chin in the jaw of the Cannstadt [Spy] race, and the large angle approaches without nearly equalling that of the anthropoids" (Cope, *Genealogy of Man*, *Amer. Naturalist*, April 1893, p. 330). 9. *Hair*, covers the whole body in all the Anthropoids, restricted mainly to the scalp and parts of the face in man; the human hair is woolly, or quasi-woolly in Homo Æthiopicus, never in any of the true apes, or even of the half-apes, except the Woolly Lemur (*Avahis laniger*) of Madagascar. Greyness with years is also a human feature, although the tendency has been observed in Gorilla. Traditional reports regarding "hairy men" have been verified only in the case of the Ainu people of North Japan, with whom the character is certainly racial. 10. *Voice*, inarticulate in all anthropoids; articulate in all the hominidæ, who consequently are alone endowed with the gift of speech. This, with the associated intellectual qualities, separates man altogether from his anthropoid congeners, and consequently from all other

[1] "Jusqu'au troisième mois de la vie intra-utérine l'articulation du gros orteil du fœtus humain est oblique, exactement comme chez les singes; c'est seulement au quatrième mois qu'on la trouve transformée" (Salmon, *Races Humaines Préhistoriques*, p. 4). The great toe is still somewhat opposable among the Annamese, who from this circumstance have always been known to the Chinese as Giao-Chi or "Crosstoes."



MAN'S PLACE IN NATURE (after Huxley). *a. Orang*; *b. Chimpanzee*; *c. Gorilla*; *d. Man.*

members of the animal kingdom, with which his connection thus appears to be mainly physical. As an animal he is a member of the Anthropoidea; as a speaking and reasoning animal he stands apart and alone in a separate category, for "the essential attributes which distinguish man, and give him a perfectly isolated position among living creatures, are not to be found in his bodily structure" (Flower and Lydekker, p. 739).

The general relations of man to the Simiidæ, as seen in the skeleton, are shown in the accompanying diagram, reduced from Huxley's *Man's Place in Nature.*

Origin of man either by evolution or creation.

From the data supplied by this Table, one important point comes out very clearly—that man cannot possibly ascend[1] directly from any of the living anthropoid apes. He has some physical features in common with each, some different from each, some, and these not the least important, entirely peculiar to himself. Consequently, even on the physical side he stands somewhat apart from, but yet so near to, all, that his origin can be explained only by a process of natural evolution from a common precursor, or else by direct creation; there is absolutely no other alternative.

Creation theory

If what may be called the *deus ex machinâ* view be accepted, then the gate to further inquiry is closed, ethnology becomes ethnography, and we revert to the stage at which the question stood in the uncritical times when dogmatism usurped the chair of science. Only dogmatism would still have to grapple with many new and hopeless difficulties, resulting from the cumulation of a multiplicity of fresh facts, which point unmistakeably at natural processes of development. Such, for instance, are the caudal vertebræ and other rudimentary[2] or atrophied[2] organs which man has in common with the anthro-

[1] Obviously *ascend*, not *descend*; so Broca: "Quant à moi, je trouve plus de gloire à monter qu'à descendre, et si j'admettais l'intervention des impressions sentimentales dans les sciences, je dirais que j'aimerais mieux être un singe perfectionné qu'un Adam dégénéré" (*Mémoires d'Anthropologie*, III. p. 146).

[2] Owing to their careless use even by scientific biologists, some confusion prevails regarding the meaning of these two terms, which are not by any means synonymous although constantly taken as such. A *rudimentary organ* is one

poids, and which, being useless, are inexplicable on the assumption of creation by infinite wisdom, but quite intelligible by the theory of evolution. "In order to understand the existence of *rudimentary organs* we have only to suppose that a former progenitor possessed the parts in question in a perfect state, and that under changed habits of life they became greatly reduced[1]."

inadequate and useless.

But the supernatural view can in no way get rid of evolution, which is indispensable to any theory that attempts to account for many patent facts in the natural history of the Hominidæ. It is not, for instance, pretended that all the Hominidæ were independently created, but one only. Consequently the transition from, say, the Homo Caucasicus (if he was the starting-point) to the Homo Æthiopicus, must have been effected by some natural evolutionary process; from this there is no escape for the creationist. Now the typical white man differs enormously from the typical Negrito, so much so that they would have to be regarded as separate species but for the intermediate forms in actual existence. Here then we have in any case a range of evolution scarcely less[2] than that which is covered by the transition from Gibbon to Orang or Chimpanzee. The difference is obviously one of degree only, and not of kind, so far as regards physical structure.

Evolution theory adequate.

Creation being thus useless unless supplemented by evolution, it may be dropped, or reserved for such points, if any there be, which cannot be explained by the natural process. This process is adequate for the early or initial stages of development; it may therefore be safely

so to say, beginning its life history, as for instance, the elementary chin and ear-lobe in some anthropoids, which are more fully developed in man. An *atrophied organ* is one, on the contrary, which has run its course, completed its life history, leaving only a trace of its former existence, as, for instance, the caudal vertebræ, remnants of a tail in the anthropoids and in man. Rudiment is the Lat. *rudimentum*, from *rudis*, rough, unfinished; *atrophy* is the Gr. ἀτροφία, a wasting away through lack of nourishment, from ἀ negative prefix and τρέφω, to nourish.

[1] Darwin, *Descent of Man*, p. 25 of 1885 ed.

[2] Huxley implies that it is even more, for he declares that the gulf between civilised and savage man is wider than that between the savage and the highest apes. *Man's Place in Nature*, p. 78.

concluded that primitive man, whether it be Haeckel's *Homo primigenius alalus*, or any other postulated form, was not created but evolved. It need scarcely be added that creation, as possibly standing behind all living organisms, is not excluded absolutely, but only relatively to the Hominidæ, with whom alone ethnology is concerned.

Creation not excluded absolutely.

This attitude towards creative agency leaves science unshackled, and gives a free hand to the biologist within the limits of the existing order, without prejudice to dogmatic preconceptions, without offence to extremists on either side. It has the further advantage of obviating the irreverent and unorthodox[1] introduction of the *Ens Supremum*, with Cuvier and other supernaturalists, to account for every successive change in the animal series, or else of needlessly and rashly abolishing the *Ens Supremum* altogether, with the presumptuous modern materialistic school. Natural philosophy is not called upon to solve, or indeed to deal at all with, these transcendental questions, which may well be left to metaphysicians and theologians. It has certainly no right to dogmatise over subjects beyond its sphere, about which it can never know anything, although it may justly claim the right to dispense with the aid of the creative force within the limits of legitimate speculation. In this middle course would seem to lie the true ultimate "reconciliation of Science and Religion[2]."

Natural and supernatural views reconciled.

[1] *Irreverent*, because such implied bungling and tentative efforts to arrive at more perfect types of organic life are derogatory to Infinite Wisdom; *unorthodox*, because multi-creation is not warranted by, but opposed to, Scripture, which speaks only of three creative acts within the biological horizon—two for the vegetable and animal kingdoms, and one for man. In the evil days of rampant sacerdotalism Cuvier must have shared the stake with Giordano Bruno.

[2] So Lamarck: "Sans doute, rien n'existe que par la volonté du Sublime Auteur de toutes choses. Mais pouvons-nous lui assigner des règles dans l'exécution de sa volonté et fixer le mode qu'il a suivi à cet égard? Sa puissance infinie n'a-t-elle pu créer un ordre de choses qui donnât successivement l'existence à tout ce que nous voyons comme à tout ce qui existe et que nous ne connaissons pas?...Respectant donc les décrets de cette sagesse infinie, je me renferme dans les bornes d'un simple observateur de la nature" (*Philosophie zoologique*, I. ch. iii.).

Man being thus evolved, evolutionists themselves are confronted with a difficulty which they cannot shrink from discussing. It is obvious from his physical relations to the Simiidæ that the beginning of his evolution must date from the incalculably remote miocene times, when Dryopithecus, and no doubt other fairly developed anthropoid forms, had already made their appearance; for, as seen, from none of these can man be derived. Where then does he part company with all other branches of the suborder, and enter on his own proper upward development? Here the absence of intermediate links, owing to the necessarily imperfect state of the palæontological record, seems to bar further inquiry except of a purely speculative character. De Quatrefages, in fact, and his followers give up the problem, and while claiming to be evolutionists—to a certain extent, they deny that the gulf between animality and humanity, as well as between the other animal orders, can be bridged over by any process of progressive evolution. The position is exactly analogous to that of certain philologists, who admit evolution within each morphological order of speech, but not between the several orders themselves.

Difficulties of the progressive evolutionist theory.

Views of de Quatrefages.

Others with Mortillet (*Préhistorique*, p. 104) claim as the precursor of man a tertiary anthropoid, not however the Dryopithecus, so that the diverging point from the pithecan stem towards quaternary man, admitted by all, need not be dated farther back than tertiary times. The tertiary precursor himself is assumed to have been near enough to a true man to have made implements resembling those found at Thenay in France and at Otta in Portugal, and consequently superior to those of the recently extinct Tasmanians, who were certainly true men. The man of Otta, however, is not yet proven. Such was the opinion of Evans, Virchow and de Quatrefages who took part in the discussion on the subject, when the Otta flints were produced at Lisbon by their finder, Carlos Ribeiro. But on that occasion both Virchow and de Quatrefages treated it as a local question, and declared their belief in tertiary man on other grounds: "Je crois à son existence, mais pour d'autres raisons" (Virchow).

Mortillet

and Sergi.

Sergi, a leading Italian anthropologist, rejects both of these views; that of de Quatrefages as opposed to numerous morphological facts in the animal and human groups, and as reviving the exploded theory of fixed species, and leading to the inconsistency of A. R. Wallace, who, although one of the originators of the doctrine of evolution, excludes man as specially created[1]; that of Mortillet because no postulated Dryopithecus, or any analogous type, can develop into the human form. All alike are already too highly specialised in other lines of development. Sergi holds not only that the Thenay objects, but even the fossil remains from the tertiary deposits of Castenedolo in the Brescia district, found *in situ* by Ragazzoni in 1860, and allowed by de Quatrefages[2] to belong to the tertiary epoch, represent fully developed human beings, so that man would have already appeared in that epoch, endowed with all the characters by which he is at present distinguished from the lower mammals.

The Castenedolo man.

Sergi's tertiary Hominidæ.

But Sergi, who may be taken as the most powerful champion of "tertiary man," goes much further than this, and expresses his conviction not only that man, but the Hominidæ themselves, whom he regards not as mere varieties but as true species, had already been differentiated as *genus homo* in pliocene times, from which period the different species have, like the anthropoids, constantly maintained their distinctive characters. Here are, therefore, not merely one but several human prototypes, which would have persisted with little change (a mere "series of ethnical modifications") from the prodigiously remote early tertiary period down to the present day[3].

[1] *Contributions to the Theory of Natural Selection*, 1878.

[2] "A coup sûr, si elle [la découverte] avait été faite dans un terrain quaternaire, personne n'en aurait contesté la réalité." *Races Humaines*, I. p. 100. The remains comprised a man, a woman, and two children unearthed under conditions afterwards verified by Sergi himself.

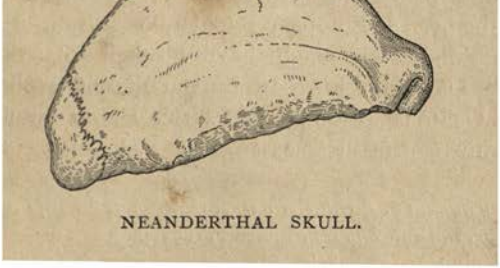
[3] "Io sono convinto che le specie umane si sono formate molto probabilmente nei primi periodi terziari, e sono apparse come *genus homo* nel plioceno, dal qual tempo, come le antropomorfe, han conservati costantemente i loro caratteri. Dopo ciò, una serie di modificazioni, che noi chiameremo etniche, si sono prodotte per diverse cause &c." (*Evoluzione umana*, 1888, p. 11.)

Whatever be said of this view, there is no doubt at all not only that man, but even several varieties of Hominidæ, had already appeared in quaternary times, at least in Europe, if not also in Africa, Asia and America. Attempts have been made to discredit some of the evidence bearing on this point, and no conclusions can certainly be drawn from the skull found at Cannstadt nearly two hundred years ago, and somewhat hastily taken as representing a palæolithic "Cannstadt race." It is even doubtful whether this skull, now preserved in Stuttgart, is the one actually found, not in a quaternary bed as was said, but associated with some potsherds in the talus or rainwash at the foot of the cliff, on which is a modern cemetery. It may be quite recent and probably pathological, or else a reversal to a palæolithic dolichocephalic type with simian characters, the existence of which is now established by overwhelming evidence. This type—upon the osteological peculiarities of which it is unnecessary to dilate here, further than to remark that its chief feature, the great

Quaternary man.

Evidence of Cannstadt skull rejected.

Evidence of Neanderthal skull affirmed.



NEANDERTHAL SKULL.

development of the supra-orbital ridge, is sufficient to attract the attention of even the most untrained observer—is commonly known as that of *Neanderthal*, from a skull and some other human remains extracted in 1856 from a quaternary bed in the Feldhofen cave of the Neander valley between Dusseldorf and Elberfeld, Rhenish Prussia. The cranium, pronounced by Huxley to be the most ape-like yet discovered, was spoken of by Virchow as

possibly also pathological[1]; hence, although its normal character has been fully demonstrated by Broca, Brinton and others still clamour for its removal from anthropological works. But even so, they cannot get rid of the type, the general characters of which are shown in the restoration by Enrico Giglioli in his work on the antiquity of man[2].

The Quaternary Hominidæ. Persistence of primitive types.

In its essential features the same primitive type reappears in other well authenticated human remains, such as those of La Naulette near Dinant, Spy, also in Belgium, Shipka in the Balkan peninsula, Olmo in Italy, Predmost near Prerau in Bohemia[3], Samborombon and others in Argentina[4] and Brazil, thus establishing several distinct primitive types in both hemispheres.

Views of various anthropologists.

From the American fossils, differing little from the forms still surviving in the same regions, Kollmann infers that the human species has not varied since quaternary times; whence his so-called *Dauertypus*, or "persistent type[5]." From the European fossils similar inferences have been drawn by Broca, de Quatrefages and the French anthropologists, who speak somewhat confidently of the persistence of the types of palæolithic men, and of reversals to such forms amongst the present European populations. Broca even suggests that the French Kelts might have resulted from the fusion of quaternary man with Ligurian immigrants in neolithic times[6]; while de Quatrefages affirms the survival amongst us of direct representatives of fossil races (*Crania Ethnica*, p. 28). So also

[1] *Verhandlungen d. Berliner Anthrop. Gesellschaft* for 1872.

[2] *L'Uomo, sua antichità* &c., Florence, 1893, p. 9.

[3] The well-preserved fragments of skeletons of a whole diluvial family of six persons, found in 1894 by Herr Maschka, associated with the remains of numerous previously discovered mammoths; that of the man wonderfully complete and of gigantic proportions. (*Athenæum*, Sept. 1, 1894.)

[4] A skeleton with 13 dorsal vertebræ, as in Chimpanzee, Gorilla and Cebidæ, instead of the normal 12; found by Carles associated with a Megatherium (Vilanova, *International Congress of Americanists*, 1892).

[5] *Die Autochtonen America's*, in *Zeitschrift für Ethnologie*, 1883, and elsewhere.

[6] *La race celtique ancienne et moderne*, in *Rev. d'Anthrop.* vol. I.

Dr Houzé, who considers that "heredity is so strong that, after thousands of years, we still find in the midst of our populations nearly pure descendants of our quaternary ancestors[1]."

At first sceptical, the foremost English anthropologists (the late Prof. Rolleston, Flower, Thurnam, Barnard Davies, Galton and others) have now mostly accepted these conclusions, while still suspending their judgment regarding tertiary man. In the first report (1882) of the Committee appointed to obtain photographs of the typical races in the British Isles, it is affirmed that, despite universal miscegenation, primitive racial types may still be recognised amongst the present inhabitants of Europe; that prehistoric characteristics do survive and that under favourable conditions a complete reversion to original types may take place through the operation of natural laws. The Committee seems to agree with Kollmann (the Swiss anthropologist) that original features may be detected even in mixed populations, owing to the persistence of pristine cranial characters long after the colour of hair and eyes had been blurred by crossing; and lastly that a complete fusion of constituent elements never absolutely occurs. But there are reservations, and Dr Beddoe holds that, in the absence of information respecting the features generally, light hair and eyes and tall stature would not suffice to pronounce any person a Saxon, Dane or Swede.

American specialists go even farther, and E. D. Cope, amongst others is inclined to regard the man of Spy "as a distinct species"; yet somewhat inconsistently thinks it equally probable that, "taking into consideration the characters of the Neolithic man, the Europeans originated in Europe, and that some of us are the direct descendants of the *Homo neanderthalensis*[2]." It should be added that this great palæontologist does not derive man directly from the lemurs (as asserted by Topinard and others), without the intervention of the Anthropoidea. On the contrary his working hypothesis is that from the Eocene Lemuroids ascend the Anthropomorpha "which include the two families Hominidæ and Simiidæ" (ib. p. 326). In other words from a generalised Lemur type branch off the true Lemurs,

[1] *Bull. d. l. Soc. d'Anthrop. de Bruxelles*, 1894, p. 127.

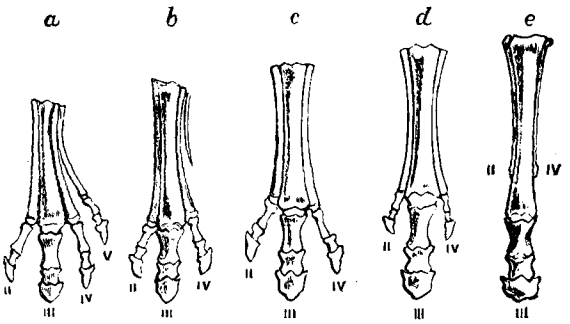
[2] *The Genealogy of Man* in *The American Naturalist*, April, 1893, p. 335.

the monkeys and the true Anthropoidea, which latter again ramify into the Simiidæ and Hominidæ as in our diagram (p. 19).

Are we to conclude from all this that, unlike the types of other higher organisms, the human type and subtypes have persisted unchanged since early quaternary, if not late tertiary, times; in other words that man, highest and consequently most sensitive of all mammals, is not subject to the ordinary laws of physical evolution, that he remains unmodified under the thousand influences of the modifying environment, that his growth is out of harmony with the laws of the universe? The foremost expounders of evolutionary teachings would here seem to find themselves in direct antagonism to the fundamental principles of evolution itself, according to which not even species, much less varieties, are fixed and stable. Is there to be a Dauertypus of man alone, and perhaps of the molluscs near the other end of the gamut? This is the first and one of the greatest difficulties that anthropology would appear to have passed on to ethnology for solution.

Analogy of the Equidæ.

The point may be understood, and perhaps explained, by reference to the somewhat analogous case of the Equidæ, whose pedigree has been fairly well worked out from lower eocene times. *Eohippus* from the



a. Pachynolophus. b. Anchitherium. c. Anchitherium (late miocene). *d. Hipparion. e. Equus* (pleistocene).

Mexican deposits of that epoch, a creature no larger than a fox,

with four hoofed toes and an already atrophied thumb on the fore feet, is linked with the living forms (horse, ass, zebra, &c.) through *Orohippus* from the middle eocene of Utah and Wyoming, with four hoofed toes, *Anchitherium* from the early and late miocene with three hoofed toes in use, *Hipparion* from the pliocene with three hoofed toes, of which two are atrophied, and the pliocene horse with one hoof and traces of two others. Here we see the physical evolution of the Equidæ completed within the tertiary epoch, since which time the further modifications have been confined to specific developments of their pliocene precursor. Thus there has been continuous and orderly change from early tertiary to pleistocene or quaternary times, when the living species were established, all in strict accordance with evolutionary principles.

So it would appear to have been with the Hominidæ, except that here the postulated or actual (Castenedolo?) precursor has developed quaternary varieties only, and not true species. This is in accordance with all the known facts, for Sergi's tertiary Hominidæ are purely conjectural and must be rejected, because their living representatives would necessarily be undoubted species, like the assumed tertiary forms themselves, and not merely varieties connected by unbroken intermediate links. Thus here also there has been continuous change down to the quaternary varieties, and if these forms of the Hominidæ are less specialised physically than the corresponding forms of the Equidæ, the fact may be probably due partly to the more extensive intermingling of the former, arresting further divergence, partly to the greater intelligence by which they were able better to protect themselves from the modifying influences of the environment. Thus may be explained Kollmann's Dauertypus, the persistence of the human varieties already established in the quaternary epoch, and the reversals to the primitive types observed amongst the present European populations, as now generally accepted by anthropologists.

Sergi's Tertiary Hominidæ rejected.

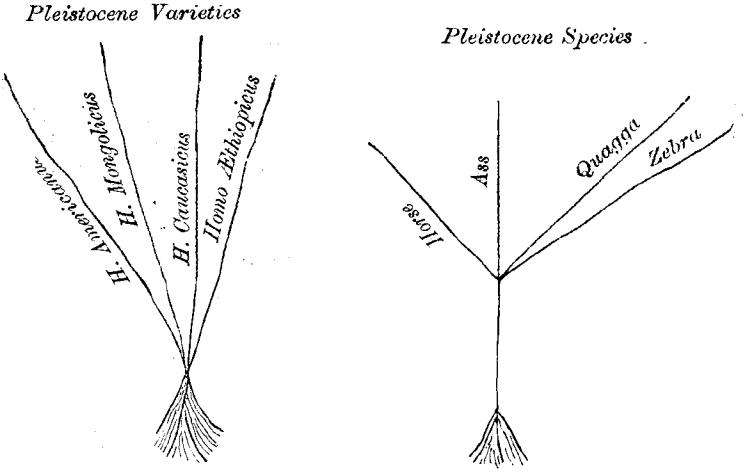
Persistence of, and Reversals to primitive types.

In the accompanying diagrams is shown the parallelism between the physical evolution of the Hominidæ and Equidæ from their respective pliocene pre-

Comparative diagrams of

Pleistocene Hominidæ and Equidæ.

cursors. Here the greater divergence in the pliocene branches of the Equidæ is seen to result in the present distinct pleistocene species, while the less divergent branches of the Hominidæ indicate pleistocene varieties only:—



HOMINIDÆ. EQUIDÆ.

No difficulty is presented by the persistence of the human varieties since the pleistocene period, because, long though the interval be, it has still been too short for the development of specific differences even in the animal series. Consequently here no exception need be claimed, with Wallace for instance (*Natural Selection*, 1864—9) for man, whose physical evolution scarcely differs appreciably from that of his quaternary animal contemporaries since the glacial epoch. Recent observations by such eminent palæontologists as Albert Gaudry, Nehring and Boule, show that many living varieties of the cave fauna, the so-called *Canis spelæus*, Goldf.; *Lupus spelæus*, Blainv.; *Hyæna crocuta*, some foxes, and even *Leo spelæus* differ scarcely more from each other (Mauritanian, Nubian, Persian and Gujerat lions, for instance) than they do from their pleistocene precursors; the divergence has consequently been no greater than has been that of the living

human varieties from their pleistocene precursors[1]. Thus is reached the broad conclusion that the living Hominidæ, pleistocene and pliocene man, with a postulated miocene precursor, would differ respectively as varieties, species, and genus, these organic differences themselves representing correspondingly longer geological epochs, in which to accomplish their several stages of development.

[1] Ce qui s'est produit pour l'organisation de l'un s'est produit pour l'organisation de l'autre...Le temps écoulé [depuis l'époque quaternaire] a été trop court pour que les accumulations de variations dans les organismes aient encore pu opérer des transformations de spécificité, suivant la loi de la sélection naturelle. Au contraire, les temps antérieurs se présentent à nous...comme ayant eu des durées incomparablement plus grandes, au cours desquelles la sélection naturelle aurait eu le temps de manifester toute sa puissance" (E. Dupont, *Bull. d. l. Soc. d'Anthrop. de Bruxelles*, 1894, p. 328).

CHAPTER III.

MENTAL EVOLUTION OF MAN.

Human incomparably greater than animal intelligence—Growth of mind apparently out of proportion to that of its seat, the brain—Evolution of organ and function correlated—Cranial to be distinguished from mental capacity—Comparative cranial studies often contradictory—Chief physical determinants of mental power not so much the volume of the brain as its convolutions and the cellular structure of the grey cortex—These elements capable of indefinite expansion till arrested by the closing of the cranial sutures—Different degrees of intelligence in different races accounted for—Such differences independent of the general bodily structure—Hence physique and mental power not necessarily correlated and not always developed *pari passu*—But mind and cerebral structure always correspond—Hence comparative study of brain texture, as by Broca and Miklukho-Maclay, yield best results—Brain and its function, thought capable of indefinite future expansion—Differ in degree only, not in kind, from those of the lower orders—Time alone needed to bridge the gap.

Human incomparably greater than animal intelligence.

If the physical has been less, the mental evolution of man has been immeasurably greater, than in the Equidæ, the anthropoids and all other organisms[1]. To the immense divergence in this respect is due the tendency of former systematists (Cuvier, Owen and others), to separate man altogether from the other

[1] At the Exhibition of the Anthropological Sciences in Paris, 1889, a diagram was exhibited by Dr Topinard showing the great gap between the brain weight and cranial capacity of man and the higher apes. Thus:

Weight.

Average for man 1·250 } grammes; difference, 0·874.
Average for ape 0·376 }

Difference between lowest human and highest ape species, 0·612.

Difference between lowest human individual (an Australian woman) and highest individual ape } 0·482.

Capacity (*volume*).

Average difference 885 c.c.; difference between lowest human and highest Simian species 579 c.c.; between lowest and highest individuals 377 c.c.

mammals, and place him in a category apart. Indeed it might almost be said that for the ethnologist proper, who is concerned perhaps more with the mental than with the physical side, mankind does occupy such a separate place in the animal kingdom. But the mind itself cannot be studied apart from the physiological conditions common to man and all other animals, else physiology becomes confused with psychology, and the subjective takes the places of the objective method, a retrograde movement opposed to the inductive philosophy as established by Nicholas Bacon, and foreshadowed by Friar Bacon, greatest of the Schoolmen, who in times of pure speculation enthroned observation, experiment, as "mistress of all the sciences, and end of all speculation" (*domina scientiarum omnium et finis totius speculationis*).

Growth of mind apparently out of proportion to that of its seat the brain.

Physiology has placed beyond all doubt the fact that the mental faculties are all localised in the brain, and it might be supposed that there was no room in the skull for such expansion of its contents as would seem to be required by the enormous progressive expansion of the human intellect since the Hominidæ branched off from the anthropoid stem. That there has been growth, and considerable growth, in size and weight has already been seen (p. 25); and in point of fact the lowest human brain stands in these respects as 3 to 1 compared with that of the highest apes. But such a ratio is a totally inadequate expression of the superiority of the human over the ape mind[1].

Evolution of organ and function correlated.

Have we here antagonism between function and organ, lending support to the view that the function creates the organ, and not the organ the function, in the idle discussion that has lately broken out on this metaphysical point? Neither of these views

[1] The reader will observe that *mind* (*thought, intelligence*), not *soul* or *spirit*, or "*psychic force*," is here under discussion. Such expressions as *I had a mind to do it; a strange thought passed through my brain*, show how common speech shapes itself to the difference between these concepts, expressing the distinction between the *ego* and its functions more vividly than many psychological essays.

can be held, for at no stage of growth can one of the factors exist apart from the other. Function is an attribute, and attributes—whiteness, hardness, reason, memory and the like—can have no independent existence; they are not entities but pure abstractions. Has anybody, except perhaps Plato, ever seen a tree that was not some kind of tree? No, because *tree* is an abstract term which finds no place in the vocabulary of many primitive languages. If there was a hand (organ) it was used for prehensile purposes (function), because to grasp is an attribute of the hand, and by constantly exercising that attribute, that is to say, by dint of much grasping, aided by natural selection, heredity and time, the hand, starting as a rudiment, was ultimately perfected. Organ and function are developed together; neither creates the other, at least in the physical world. Probably the prevailing confusion on this fundamental point of biological evolution, is to be traced to the prominence given by Lamarck to the "efforts of the inward sentiment[1]" of animals in bringing about changes in their physical constitution, thus suggesting the idea that "la fonction fait l'organe" (M. Duval).

So it is with brain and thought, and it might be inferred *à priori* that the human brain, seat of human thought, has been in some way physically perfected far beyond the ratio above indicated between it and the simian brain. This inference is now demonstrated *à posteriori* by physiologists, who show that mere size and weight, however important in themselves, are no measure of the real difference between the human and the highest simian brain. But owing to the relatively rare opportunities of studying the brain itself in its inner texture and structure, anthropologists have hitherto directed their attention mainly to the brain-case, determining from its capacity that of the brain, and inferentially that of the mind itself. Thus the essential distinction between cranial and mental capacity has been

Cranial and Mental Capacity to be distinguished.

Comparative cranial studies

[1] "Tout nouveau besoin...exige de l'animal qui l'éprouve, soit l'emploi plus fréquent de celle de ses parties dont auparavant il faisait moins d'usage... soit l'emploi de nouvelles parties que les besoins font naître insensiblement en lui par des efforts de son sentiment intérieur" (*Philosophie Zoologique*, I. p. 231 of 1873 ed.). It is here that Lamarck and Darwin part company.

confused, the most unsatisfactory and even contradictory results have been arrived at, the long and painstaking labours of many eminent comparative anatomists have been largely wasted, and craniology itself unduly discredited. "A few years ago it was thought that the study of Crania offered the only sure basis of a classification of man. Immense collections have been formed; they have been measured, described and figured; and now the opinion is beginning to gain ground that for this special purpose they are of very little value. Professor Huxley has boldly stated his views to this effect; and in a proposed new classification of mankind has given scarcely any weight to characters derived from the cranium. It is certain, too, that though Cranioscopy has been assiduously studied for many years, it has produced no results at all comparable with the labours and research bestowed upon it. No approach to a theory of the excessive variations of the cranium has been put forth, and no intelligible classification of races has been founded upon it[1]."

often unsatisfactory.

The so-called cranial indices, on which a vast number of comparative measurements have been made between races and peoples, are concerned exclusively with the skull, the brain itself being seldom, and in certain cases such as fossil and sepulchral remains, never available. How valueless are many of the conclusions drawn from such comparisons may be inferred from the figures yielded by the skulls of Egyptian mummies, of neolithic man, and of Europeans at different epochs, often showing no change or even indicating apparent retrogression instead of progress after long intervals of time. Thus Professor Schmidt[2] finds that the ancient Egyptian women had a higher cranial capacity or volume (1257 cubic centimetres) than the modern (1206 c.c.), while, according to Broca's measurements, the men of the 4th dynasty (1532 c.c.) stood higher than those of the 18th (1464 c.c.). This great anthropologist also determines the mean capacity both of neolithic and modern Europeans at about 1560 c.c.[3]; no advance in some tens of thousands of years!

[1] A. R. Wallace, *Malay Archipelago*, 5th ed. p. 599.

[2] *Ueber alt- u. neuägyptische Schädel*, in *Archiv f. Anthrop.* Brunswick, 1887, vol. 17.

[3] *Mémoires d'Anthrop.* 1871, p. 334, and elsewhere.

Yet the mental advance is unquestioned, and this advancement would be found to correspond with the physical advancement, were the brain, and not merely the skull, of the early Egyptians and of neolithic man available for comparative purposes. But the contrast would have to be sought not so much in the respective volumes (size and weight), as in the sinuosities or convolutions of the inner white substance, and especially in the cellular structure of the thin outer cortex or envelope of grey matter which follows all the inner convolutions, with which it is also connected by an exceedingly complex nervous system. The countless cells of the cortical matter, fed through the nerves by the white substance, are the ultimate seat of mental energy, and here is found the field in which this delicate organ and its function, thought, may acquire indefinite expansion. The development of the cellular tissue, with a corresponding increase of mental power, apparently goes on until arrested by the closure of the cranial sutures. All the serratures are stated to be more complex in the higher than in the lower races, and their definite closing appears to be delayed till a later period in life amongst the former than amongst the latter. This physiological character, to which Filippo Manetta was the first to call attention in connection with racial differences[1], has recently been noticed by two intelligent observers, Col. Ellis amongst the Upper Guinea peoples[2], and Captain Binger amongst the West Sudanese populations generally. "The Black is a child," says this writer, "and will long remain so"; and the sudden arrest of the intellectual faculties at the age of puberty is attributed to the premature closing of the sutures[3]. Broca also has noticed that in idiots the "soldering" takes place early in

Determinants of mental power less the volume of the brain than its convolutions and cellular structure.

These elements capable of indefinite expansion till arrested by the closing of the cranial sutures.

Different degrees of intelligence in different races accounted for.

[1] *La Razza Negra nel suo stato selvaggio* &c., Turin, 1864, p. 20.

[2] *The Ewe-speaking peoples*, 1890, pp. 9–10.

[3] A cet arrêt intellectuel doit correspondre, dans ces régions [Sudan], la soudure de la boîte cervicale: le développement du crâne s'arrête et empêche le cerveau de se dilater davantage" (*Du Niger au Golfe de Guinée*, 1892, II. p. 246).

life, while the process is delayed the more the brain or mind is exercised. All this is highly significative, and would seem to place beyond doubt the direct relation between mental and cerebral expansion. An explanation is thus afforded of the different grades of intelligence that have everywhere been observed in the Hominidæ throughout the historic period. In some the normal development of organ and function has proceeded simultaneously till the present highest level has been reached. In others both have been arrested at various stages by physiological causes, which may have had a pathological origin, but which more probably represent various stages in the evolution of the cranium since quaternary times. This may be inferred from the fact that in the Neanderthal skull the frontal sutures are closed (ossified), while the occipital are more or less free, a distinct mark of inferiority, the greater animal development of the cerebellum being determined by the premature closing of the frontal serratures. In the Marcilly-sur-Eure cranium, also distinctly palæolithic, "la suture frontale a entièrement disparu, la soudure est complète; on ne voit plus de trace de dentelures sur le sommet de la tête[1]." It would therefore seem probable, or at all events possible, that intense cerebration acts almost mechanically on the brain-cap, tending by its throbbing to keep the frontal sutures free till late in life, and even causing an expansion of the cranium itself in energetic and highly intellectual races.

It is noteworthy that the mental differences are independent of the general bodily structure, so that the various groups of Homo Caucasicus, supreme in mental capacity, do not always compare with advantage physically with some of the lower types; the South Europeans, for instance, with the Masai, the Zulu-Xosas, the Samoans and the Eastern Polynesians. Some of the highest intellects—Alexander Pope, Heine and others—have dwelt in feeble frames, while the stupid Serer Negroes of Senegambia are endowed with Herculean bodies. It seems obvious that since quaternary times the evolution of mind-stuff and of the general

Such differences independent of the bodily structure.

Hence general physique and mental power not necessarily correlated.

[1] Philippe Salmon, *Races Humaines préhistoriques*, p. 15; de Mortillet, *L'Homme*, p. 48.

physique has not gone on simultaneously everywhere, so that we now see great discrepancies and apparent contradictions between the two, one element progressing more rapidly in one place, the other in another. The explanation of such anomalies is perhaps to be sought in the very conditions of existence. In unfavourable environments, such as excessively hot and moist intertropical regions, man must either perish, or acquire such physical properties as may enable him to successfully struggle with the adverse climate, and in the struggle the animal is improved at the expense of the mental side. But in more favourable surroundings, as in the temperate zone generally, the struggle is relaxed, the need of bodily perfection diminishes in direct ratio to mental growth, and the intellectual are, so to say, improved at the expense of the animal properties. But wherever the point can be tested, it will probably be found that mental growth has always gone hand in hand with an increasing number of cells of the cortex and of cerebral sinuosities. "That the convolutions in the Negro brain are less numerous and more massive than in the European appears certain[1]," and it may be safely asserted that no brain of any inferior type will be found displaying the large number of windings exhibited by that of the late Professor von Helmholtz, one of the profoundest and most many-sided intellects of the age (ob. Sept. 11, 1894).

But mind and cerebral structure always correspond.

On the other hand the brain-cap of many savages has been found to be larger and heavier than that of some higher races. Thus in one of Broca's tables, quoted by Topinard (*Anthropology*, p. 230) the average of the neolithic skulls from the "Dead Man's Cave" is higher (1606 c.c.) than that of the Auvergnians (1598 c.c.), the Parisians (1558 c.c.) and the Spanish Basques (1574 c.c.), and not much less than that of Cuvier himself. After a long discussion of the subject in all its bearings, Waitz found himself "compelled to renounce the doctrine that the capacity of the cranium indicates the amount of mental endowment" (ib. p. 266). Nevertheless it will be seen that broad inductions may be drawn even from a comparison of cerebral volume alone. Years ago the subject engaged the attention of Dr C. G. Carus in connection with

[1] Waitz, *Anthropology*, I. p. 94.

Morton's *Crania Americana*, where the skulls of the Prairie Indians show a higher capacity (84 cub. in.) than those of the far more civilised Toltecs (77). If, says this deep thinker, we assume no direct relation between cranial volume and grades of culture, the former being merely or mainly the expression of a more vigorous bodily organisation, these discrepancies need not surprise us. It cannot be denied that general advance in culture is often attended by a certain decrease of physical strength (*Abschwächung*), by diminishing the need of bodily exercise, and removing us more and more from natural influences generally, thus inducing a certain delicacy (*Verzärtelung*), and even sowing the seeds of many ailments by which the energies of the physical man are necessarily diminished[1].

Hence comparative study of brain texture promises the best results.

Owing to the unsatisfactory results obtained from mere cranial comparisons, Broca himself turned later to the exclusive study of the brain, in which his greatest triumphs were achieved[2]. During his residence at Brisbane, Miklukho-Maclay also began a systematic study of the cerebral structure from the ethnological standpoint. As was to be expected, he succeeded in determining a substantial difference between the brains of various races (Australians, Melanesians, Malays and other Mongoloid peoples) in the development of the *corpus callosum*, the *pons Varolii* and the *cerebellum*, as well as in the relative development of the nerves, and in the grouping of the sinuosities in the great brain[3]. But the subject is in its infancy, although already sufficiently advanced to lead us to anticipate fruitful results from this new line of investigation. One point seems established, that as the sinuosities have had indefinite expansion in the past, so there is still ample room for indefinite expansion in the future. Consequently, although size and weight may have probably attained their limits, the extent to which the cellular tissue may

Brain and its function, thought, capable of indefinite future expansion.

[1] *Entstehung und Gliederung der Menschheit*, 1858, p. 75.

[2] "Broca, il Pontefice Massimo dell' ipercraniologia moderna...non studia più i crani, ma i cervelli" (Mantegazza, *Archivio*, x. 1880, p. 117).

[3] Nature, Dec. 21, 1882, p. 185. These results agree with those obtained by H. B. Rolleston from a careful study of the brain of an Australian, in *Journ. Anthrop. Inst.* 1888, pp. 32 *et seq.*

improve is practically uncircumscribed, and in this direction a corresponding expansion of the mental faculties may be hoped for[1]. Ethnology properly understood affords no ground for the current pessimism, the disease of the age. By improved social institutions, more rapid progress may be made towards the ideal standard expressed by the formula, *mens sana in corpore sano*.

Differ in degree only from those of the lower orders.

Unless we take our stand on this firm ground of the simultaneous upward growth of organ and function, itself the best guarantee of further upward growth, we fall back either with Romanes on mysticism (*Mental Evolution in Man*), or with Mivart on supernatural intervention at the psychological moment (*Origin of Human Reason*). Separate brain from cerebration, and we are lost in the *à priori* reasonings of Noiré and Max Müller, ultimately rooted in the Kantian philosophy. The difficulties that all these evolutionists, and quasi-evolutionists, conjure up and leave unsolved, arise from the radical mistake of comparing the mind in its highest evolved state with that of the brute order, where the gap is so vast as to seem impassable without the extraneous aid of the supernatural or of metaphysics. They find in man, not merely sensation and receptivity, with perhaps a modicum of consciousness as in the brute, but true self-consciousness, which "enables a mind not only to *know*, but to know that it knows; not only to *receive* knowledge, but also to *conceive* it...; not only to *state a truth*, but also to state the truth *as true*" (Romanes, p. 192). But in point of fact in the Fuegian, Tasmanian or Negrito mind there are the merest glimmerings of consciousness, and of self-consciousness next to nothing.

Time alone needed to bridge the gap.

The Fuegian "self-consciousness," for instance, may be gauged by the Fuegian "conscience," which in stormy weather flings wife and children overboard, to lighten the overladen craft of so much freight, not, as has been said, to propitiate gods (or demons) of whom it knows nothing[2]. These

[1] Topinard, *L'Homme dans la Nature*. Chap. XXII.

[2] Lovisato, who has made a careful and most sympathetic study of these aborigines, denies them retentive memory, and compares their intelligence to the stationary instincts of animals: "I Fueghini hanno poca intelligenza, pochissima memoria, nessuna ritentiva. La loro abilità [mental capacity] può essere per alcuni rispetti comparata agli istinti degli animali, perchè non è

are the minds, and not those of Plato, Kant, Newton, Darwin, that should be compared with those of man's nearest congeners; then it would be seen that the difference is one, not of kind but of degree only, a difference quite capable of being bridged over by natural process of development in the course of a few hundred thousand years. It is time, not metaphysic or miracle[1], that is needed. In the next chapter an attempt will be made to provide this time, the great instrument with which Nature works out all her transformations.

migliorata dall' esperienza...Difficilissimo è per loro comprendere le più semplici alternative, quindi con immensa difficoltà si possono da loro avere delle informazioni, e non si può mai essere sicuri se, a furia di domande, essi abbiano esattamente compreso ciò che loro abbiamo detto" (*ib.* p. 27). Yet this group (the Yahgans) had at that time (1870—1884) been fourteen years in the hands of the English missionaries, and nearly all were "Christians." Since Darwin's time (*Voyage of the Beagle*) there had been no appreciable intellectual advancement, despite the flourishing reports received in Europe, and despite the 30,000 words with which their language was strangely credited.

[1] Even Joseph Le Conte, whose theory of evolution is a "Christian pantheism" worked out by "paroxysms," allows the domain of science "to remove as much as possible the miraculous from the realm of nature" (*Man's Place in Nature*, *Princeton Review*, 1888, p. 784). This is considerate; only "the realm of nature," like Oliver Twist, asks for more. In fact evolution is a jealous mistress; she will have all or nothing.

CHAPTER IV.

ANTIQUITY OF MAN: GENERAL CONSIDERATIONS.

The Geological Sequence in its bearing on the Antiquity of Man—Table of the Geological Sequence: Primary; Secondary; Tertiary; Quaternary; Prehistoric; Historic—The Glacial Problem—Reactionary Views—Croll's Periodicity Theory—Objections and Limitations of Time by Prestwich—A reductio ad absurdum—Arguments based on influence of Gulf Stream and Absence of Glaciation in earlier geological epochs estimated—Croll's Theory reaffirmed—A long period of time needed to meet all the conditions: Redistribution of Land and Water; Intermingling of Arctic and Tropical faunas; Scouring out of great river valleys; Man long associated with extinct animals; Britain twice submerged since its occupation by man; Little trace of primitive man in the last post-glacial deposits of the North—Two Ice-ages and long Inter-glacial period essential factors—Difficulties of the Intermingled Arctic and Tropical Faunas—Lyell and Boyd-Dawkins' "Seasonal-Migration" Theory discussed—Long association of reindeer and hyæna explained—Great age of the flints found in the high-level drift, boulder-clay, plateaux and riverside terraces—Pre-, Inter- and Post-Glacial Man—The problem restated—General Conclusion—Pliocene Hominidæ rejected—Specialised Inter-glacial Hominidæ reaffirmed—Their probable age—Post-glacial Man a nondescript.

The geological sequence in its bearing on the question of the antiquity of man.

In the foregoing chapters the age of man was rather anticipated than determined. Before discussing the subject more fully, it will be convenient to define the somewhat puzzling geological terminology bearing on the question of man's first appearance on the globe, so that the non-geological student may have some idea of what is meant by such expressions as tertiary or quaternary man, pliocene or pleistocene times, and so forth. This will best be done by giving a table of the geological sequence as recorded by the succession of stratified rocks in the crust of the earth, tabulating more fully the later periods with which we are here more immediately concerned. Geologists and solar physicists are not of accord as to the probable duration of the whole process.

Nothing can be definitely known; but it would seem that if the geologists ask too much, say, a round 100 m. (m = million) of years the physicists grant too little (20 m. or even less). Most, however, agree that the earlier stages took far more time in running their course than the later, the decrease of time proceeding by a sort of geometrical ratio down to the contemporary period. Hence if 50 be taken as a rough compromise between the extremes, the duration of the several epochs in the evolution of the earth's crust will be approximately as here indicated[1]. The point has an obvious bearing on the question of man's antiquity, as far as it can be measured in terms of years. The ratios of geological time are based on Prof. Ramsay's estimate, which assigns 79 per cent. to the palæozoic system, 18 to the mesozoic, and 3 to the cainozoic, these being respectively about 57,000, 13,000, and 2,240 feet thick[2]:—

THE GEOLOGICAL SEQUENCE.

I. PRIMARY OR ARCHÆAN:

Table of geological sequence.

Archæan.

1. *Laurentian* and *Huronian* systems, largely developed in the Lower and Upper (Lake Huron) St Lawrence Basin, whence their names; over 30,000 (?) feet thick; reddish gneiss; stratified crystalline rocks, mica schists, quartzites; unfossiliferous limestones

[1] Being mere ratios, the figures here given can of course adapt themselves to any view; those claiming 100 m. need but double them, while those satisfied with less can halve or quarter them to fancy, always, however, bearing in mind not only the slow growth, but also the subsequent weathering and disintegration of vast geological formations. In the Sahara alone some two million square miles of unstratified and sedimentary rocks have thus been triturated probably since secondary times. They were not deposited, as generally supposed, on a marine bed, and then upheaved. The sands of the Desert contain no marine fossils (Suess, Reclus, Playfair).

[2] *Journ. Geological Soc.* 1860. No doubt these proportions have recently been questioned, and the extent of the palæozoic system especially is believed to have been exaggerated. But until replaced by something definite, they may here be retained, all the more that the question of man's antiquity is not affected by the greater or less duration of the early geological eras. It may be added that Mr John Perry seems now to have satisfied Lord Kelvin that his original "20 millions" are far too little as the shortest limit: "I should be exceedingly frightened to meet him [Geikie] now with only 20 millions in my mouth" (*Letter to Mr Perry, Nature*, Jan. 3, 1895, p. 227).

and plumbago, of doubtful organic origin; but *Eozöon canadense*, long supposed to be an organism (rhizopod) is now known to be a mineral; Huronian is intermediate between Laurentian and Cambrian; duration 20 m.

2. *Cambrian*, from *Cambria* = Wales, where first studied: Llanberis and other slates, schists, sandstones and conglomerates; fossiliferous, containing numerous low organisms, such as trilobites and brachiopods; duration 8 m.

3. *Silurian*, from the pre-Aryan peoples of parts of Britain known to the ancients as *Silures*: Llandeilo flags and schists; Caradoc sandstone; Dudley (Wenlock) limestone; Ludlow ironstone and shale; Brecon and other tilestones; in Germany some greywackes (*Grauwacke*); in America the Trenton, Niagara and other formations, doubtfully of Silurian age; in Russia widely diffused; brachiopods, trilobites and other crustacea; algæ, corals; also fishes, but no higher vertebrates; duration 5 m.

4. *Devonian*, named from the characteristic Old Red Sandstones (marine) of Devonshire, though later than the Forfarshire beds; others are lacustrine (S. Wales, Shropshire, &c.); all nearly synchronous; analogous sandstones in Russia, France, Belgium, United States, &c., with similar or identical fossils, such as corals, brachiopods, and especially Ganoid fishes; duration $3\frac{1}{2}$ m.

5. *Carboniferous:* coal measures, millstone grit, carboniferous limestones, calciferous and other sandstones, deposited in lagoons, estuaries and surrounding seas; fossils abundant; corals, molluscs of all the known orders, spiders and other insects; many fishes; labyrinthodon and other amphibia; duration $2\frac{1}{2}$ m.

6. *Permian*, named from the characteristic rocks of Perm (Russia): variegated sandstones, magnesian limestones, marl slate, new red sandstones and clays; rich floras and faunas; numerous genera of fishes and reptiles, but no true birds or mammals; duration $2\frac{1}{4}$ m.

II. SECONDARY OR MESOZOIC:

Secondary.

7. *Triassic*, from Gr. *trias* = three, in reference to the three series determined in Germany, in ascending order: Bunter sandstone (Grès des Vosges of France, mottled, red and other sandstones in England); Muschelkalk, a

marine limestone, wanting in England; Keuper sandstone (new red marls, Penarth beds, &c.); molluscs, amphibians, reptiles, a few mammals; duration 2 m.

8. *Jurassic*, from the *Jura* mountains; corresponds to the *Oolitic* and *Liassic* of Britain: Fuller's earth of Bath; Oxford clay; Kelloway rock; Portland and Purbeck beds; blue and grey limestones; most liassic fossils marine; enaliosaurians, ichthyosaurians, plesiosaurians, numerous fishes; oolitic fossils, reptiles, marsupial mammals, one bird (archæopteryx); Britain and West Europe largely under water; duration $1\frac{1}{4}$ m.

9. *Cretaceous*, "chalk-like": Neocomian (Greensands); Wealden; gault; white chalk; Maestricht beds; ammonites; iguanodon; pterodactyls; probably several true birds. Throughout secondary times India was probably connected by continuous land across the Indian Ocean with South Africa; duration $1\frac{3}{4}$ m.

III. TERTIARY OR CAINOZOIC:

10. *Eocene*, "dawn of new" forms, in reference to later molluscs: (*a*) *Lower Eocene:* London clay, Paris gypsum, Barton sands and clays; Bambridge series; (*b*) *Oligocene*, or *Upper Eocene*, unrepresented in Britain, largely developed in Germany (Maintz beds, &c.); all still surviving invertebrate classes; iguanos, crocodiles, tortoises, a few birds; the living orders and families of mammals (Palæotherium, Anoplotherium, lemurs, &c.); duration 1·25 m. * Tertiary.

11. *Miocene*, "less new" forms (of molluscs): (*a*) *Lower Miocene*, equivalent to the *Upper Oligocene* of the mainland; (*b*) and (*c*) *Mid* and *Upper Miocene;* Hempstead beds; Thenay deposits; marine miocene of the Mediterranean, Egypt, India and Australia; Western parts of the United States; many higher mammals, including all living genera: Dinotherium giganteum, Mastodon angustidens, Rhinoceros Schleiermacheri, Machairodus (sabre-toothed lion); Pliopithecus, allied to Gibbon; Dryopithecus, allied to Chimpanzee; remote precursor of man postulated; in America Mesohippus, Miohippus, Perchœrus, Elotherium, Hyænodon; duration 1 m.

12. *Pliocene*, "more new" forms: two divisions; (*a*) *Old Pliocene:* Red Crag of Suffolk; white (Coralline) Crags; Antwerp

Crag; Pikermi beds near Athens; Deposits of Sivalik (Himalayan foothills); N. American Pliocene. (*b*) *New* (*Late*) *Pliocene:* Norwich Crag; Forest beds of Norfolk cliffs; German, French, Italian pliocenes; many genera of mammalia, and some living species, including all the anthropoid apes, man's immediate precursor, and man himself; Elephas antiquus, E. primigenius, Rhinoceros tichorinus (Woolly r. of the Thames Valley brick-earths); R. leptorhinus; Machairodus; Hippopotamus; Cave lion; Cave bear; spotted and striped hyæna; Irish elk; Bison priscus; all these widespread throughout Europe and Britain, some surviving into next period; Britain connected with mainland through the East Anglian forest beds, which extended along Norfolk and Suffolk coasts, passing under the present cliffs and beneath the North Sea to the Continent, the land being also continuous westward through Ireland to the 100 fathom line in the Atlantic; climate warm or mild till towards the close, when first glacial epoch sets in; duration 0·850 m.

IV. QUATERNARY OR POST-TERTIARY:

13. *Pleistocene* ("most new"), a term used somewhat vaguely by English and foreign geologists, the line being difficult to draw between this and the new pliocene; distribution of land and water nearly the same as at present; but Britain first severed from the mainland by the subsidence of the East Anglian forest beds, and reduced to the condition of an archipelago, like the Cyclades, by a subsidence of about 2300 feet; then again raised and united as before to the Continent, from which it was once more separated by a final subsidence down to its present level. Coincident with the first and second subsidences were two recurrent glacial epochs, the intervening upheaval similarly coinciding with a warm or temperate inter-glacial epoch of long duration, all these phenomena extending round the whole of the northern hemisphere, and determining the distribution of apparently intermingled arctic, temperate and tropical faunas, and explaining the extinction of most of the above specified pliocene tropical animals; characteristic pleistocene fauna; Hominidæ, primary divisions fully specialized and spread over most of the dry land throughout the whole world

Quaternary (Pleistocene).

(PALÆOLITHIC MAN); lion, brown and grizzly bear, hyæna, reindeer, panther, Kafir cat, lemmings, varying hare, musk sheep, glutton, arctic fox, alpine snowy vole, chamois and ibex; mammoth, urus. Chief formations: brick-earth, fluviatile loam, high plateaux gravels, loess; cavern and glacial drift deposits 40 to 60 feet thick, variously known as diluvium, boulder formation, boulder-clay, boulder-drift, or simply drift; all unstratified detritus (clays, flints, gravels, sands, shingle), transported partly by icebergs, partly by land-ice, and deposited during both glacial epochs. Cave dwellings, kitchen-middens, stone workshops, rude chipped and unpolished stone implements of simple types (spear-heads, scrapers, hammers, &c.), very much alike everywhere, chiefly of flint, chert, quartzite and ironstone, besides awls, borers and other objects of bone or horn, showing in some places distinct progress in the arts of palæolithic man; approximate beginning of strictly pleistocene or quaternary times 600,000 or 700,000 years ago; 0·650 to 0·120 m.; duration 0·530 m.

14. *Post-Pleistocene*, or *Prehistoric:* measured by the raised beaches, peat-bogs, alluvial deposits in Mississippi basin, Nile delta, and elsewhere and by other considerations, cannot be less than 100,000 years, probably more; largely coincides with the general disappearance of ice and the appearance of the Men of the New Stone Age (NEOLITHIC MAN), supposed to be separated in some places by a considerable interval from their palæolithic precursors, but both more probably merged together by insensible transitions; domestic animals, cultivated fruits, primitive arts (agriculture, pottery, spinning, weaving, mining of copper, tin, gold), shell-mounds, lake dwellings, barrows, sepulchral chambers, rude megalithic and monolithic monuments (menhirs, dolmens, cromlechs), some types stretching nearly round the globe from the Naga and Khasi Hills through North Africa to West Europe and Britain, and across Atlantic to Tiahuanaco (Lake Titicaca); camps, fortified earthworks, polished and perfected stone implements, dolabra, celts of varied forms and use, chiefly of flint, chert, dolerite, quartzite, obsidian, jade, jadeite or nephrite; in the eastern hemisphere neolithic man passes successively and without interruption into the copper, bronze and iron ages, repre-

Post-Pleistocene (Prehistoric).

sented in the New World by copper only, these ages merging generally in the north temperate zone in the

Historic.

15. HISTORIC (CONTEMPORARY) PERIOD: chronology, written records, literature, fine arts, modern culture connected by vague reminiscences and some definite traditions with the bronze and earlier ages[1]. Duration of historic period (in the Nile Valley and Mesopotamia) scarcely less than 10,000 years. With the progress of archæological research the beginnings of Egyptian culture recede farther and farther into the remote past. Menes, reputed founder of Memphis and of the first empire (5000 B.C.; Mariette), was recent compared with the builders of the rude monuments brought to light by Mr Flinders Petrie at Coptos, Upper Egypt, in 1894. Mr Norman Lockyer also[2] shows on astronomic grounds that a temple at Edfu towards the Nubian frontier was built for the observation of the star Canopus about 6400 B.C.; a date requiring the beginnings of Egyptian culture to be extended much farther back than had previously been supposed necessary.

The Glacial problem.

Before attempting to determine the date (geological) of man's advent, it will be necessary first to deal with the Glacial problem, around which the battle has raged, and still rages, especially in Britain and those other northern lands where naturalists and archæologists are brought into more direct contact with glacial phenomena.

Lately there has been a reaction, led by Prof. Prestwich, against the conclusions which appeared to have been firmly established and even virtually accepted by Prestwich himself[3],

[1] Homer and Hesiod, earliest names in Greek literature, of unknown date, and therefore in a sense prehistoric, had memory of times when bronze only was in use, iron being still unknown:

τοῖς δ' ἦν χάλκεα μὲν τεύχεα, χάλκεοι δέ τε οἶκοι,
χαλκῷ δ' εἰργάζοντο, μέλας δ' οὐκ ἔσκε σίδηρος.

Works and Days.

[2] *The Dawn of Astronomy*, &c., 1894. From the section devoted to the early Babylonians it would appear that their independent astronomic observations were not less ancient than those of the Egyptians.

[3] "I am disposed to consider with Mr Tiddeman, that the cave which he is now investigating at Settle [the "Victoria" Cave, Cresswell] may be of pre-

regarding the considerable antiquity of the ice age and the existence of pre-glacial man. From the above table of geological sequence it would appear that the glacial periods, beginning in late pliocene times, reached far into the quaternary, and including the interglacial interval, may have lasted altogether some 700,000 or 800,000 years. Adding the remainder of the quaternary and the whole of the contemporary, this would give an antiquity of *at least* a million years to pre-glacial man, if he existed; *at least*, because the time he may have existed before the first appearance of the ice would have still to be considered, although necessarily undeterminable even approximately. There are no data by which it could be limited except the first appearance of the allied forms (Pliopithecus, Dryopithecus), which go back to the miocene, when a remote and generalized precursor of Hominidæ must indeed be postulated[1]. But the character of such a precursor, whether truly human, or only a *homo alalus*, would remain a subject of pure speculation, interesting to systematists, but of no importance to the ethnologist, who must limit his inquiries to pre-glacial man, as above roughly determined.

When the problem of man's antiquity is put in this way, clear of all side-issues, the importance is at once seen of further determining the approximate first appearance and duration of the ice age. This problem was first seriously attacked by Dr Croll in a classical work[2], the conclusions of which have been questioned chiefly by those who are strangely

Croll's periodicity theory.

glacial age." (*Journ. Anthrop. Inst.* 1877, p. 177.) By pre-glacial, however, this geologist does not mean a separate period of indefinite duration preceding the glacial, but only the earlier stages of the glacial itself, which he divides into three periods: *pre-glacial*, that of first increase; *glacial*, that of maximum cold; *post-glacial*, that of last decrease (*Journ. Geolog. Soc.* August 1887, p. 404).

[1] Some philosophers object to anything being "postulated," except perhaps where miracles may be needed to bridge over gaps. But if we see one section of a chain suspended from above, and another advancing to meet it from below, and if the point of junction happen to be hid from view by some intervening obstacle, we all unhesitatingly concede the invisible third section; we "postulate" the "missing link." So in the orderly succession of organisms in the realm of nature, where the missing links, which have excited so much senseless ridicule, must also be granted; else the lower series has no end, the upper no beginning, but hangs dangling *in nubibus*, the greatest miracle of all.

[2] *Climate and Time*, 1875.

reluctant to concede a long term of existence to man, the noblest outcome of organic evolution. Reasoning with the intuitive genius of a Kepler, who by pure mathematical computation determined the afterwards verified interplanetary distances, Croll, believing that periodical changes in the eccentricity of the earth's orbit afforded the best clue to great secular variations of climate, and that the periods of greatest cold coincided with those of greatest eccentricity, determined the maximum and minimum periods for 3,000,000 years backwards and 1,000,000 forwards from the present time. He thus found that within the last million years, say, since near the close of the pliocene, there had been two maxima, one lasting 260,000 years (from about 980,000 to 720,000), the other 160,000 (from about 240,000 to 80,000 years ago), the differences in duration being due to differences in the maxima themselves. At first Croll with "several eminent geologists" referred the glacial epoch proper to the earlier and longer period; but afterwards, in order to be well within the limits, and also perhaps to conciliate prejudice, he made the glacial epoch coincident with the later and shorter period, closing about 80,000 years ago, and giving to pre-glacial man an age of not necessarily more than about 240,000 years (the beginning of the last maximum of eccentricity). Then much ingenuity was exercised in the effort to reconcile this limited period with the great changes that have since taken place, especially in the physiographic distribution of land and water.

Objections and limitations of time by Prestwich.

But now Prof. Prestwich will not even grant so much, and whittles down the last glacial epoch which he has never worked out mathematically, to "from 15,000 to 25,000 years," and the post-glacial "to within from 8,000 to 10,000"; and he adds: "This might give to Palæolithic man...no greater antiquity than perhaps about from 20,000 to 30,000 years; while should he be restricted to the so-called post-glacial period, his antiquity need not go farther back than from 10,000 to 15,000 years, before the time of Neolithic Man[1]." And thus we get within measurable distance of the Mosaic Cosmogony. But such a *reductio ad absurdum* is not reached without some straining and even distortions of

[1] *Journ. Geolog. Soc.* August 1887, p. 407.

physical facts, as, for instance, when the Gulf Stream is introduced to help in getting rid of the great ice-sheet some thousands of feet thick, and made to flow in larger volume than at present through the then wider Florida Strait (*ib.* p. 403). But where did the larger volume come from? Were Florida Strait now again widened, the volume would not be increased by a single drop, but only spread over a correspondingly wider space. Or if the narrowing of the channel diminished the outflow, as implied, then the waters that failed to escape would be dammed up in the Gulf of Mexico, upsetting the general equilibrium of the ocean level, were such possible, and developing in Florida Strait a prodigious series of falls and rapids on a scale large enough to dwarf ten thousand Niagaras. But in point of fact only a very small portion of the Gulf Stream penetrates through the Lesser Antilles into the Caribbean Sea, and so round the Gulf of Mexico and through Florida Strait to the Atlantic, where it merges in the much larger body which never enters the narrow seas at all, but skirts the north side of the Greater Antilles westwards to the confluence. Any local changes could not consequently affect its volume, and inferentially the climate of the higher latitudes.

But Prof. Prestwich goes still further, and argues against Croll's periodicity theory of the earth's eccentricity, on the ground that very few or no traces of glaciation can be detected in earlier geological epochs, the Chalk, for instance, the Carboniferous, "the Devonian and Silurian periods," say, as far back as 15 or 20 million years ago[1]. But there seems here confusion of cause and effect, a fruitful source of error in all such reasonings. Croll carried his calculations only 3,000,000 years back, and had he gone further, he would, or at least should, have warned his opponents not to look for much results when ages of exceeding high temperature were reached. The fierce cyclone, which cuts like a knife through the Alleghany woodlands, strews the prairie with the wreckage of mushroom towns, and churns up the waters of the Great Lakes, sweeps almost harmlessly over the stoutly built cities of the Northern States. So with the recurrent periods of cold, which in recent and temperate times covered vast areas

[1] Or a proportionate increase or reduction according to the various views held regarding the absolute duration of geological time (see note, p. 51).

with great ice-caps, but which must have had continuously diminishing effects the farther back their action is looked for. They may no doubt have stimulated the cooling process; but they could scarcely have had any appreciable effect, for instance, in pre-Archæan times, when the surface of the earth may be supposed to have still been in a somewhat viscous or semi-fluid state, owing to the great internal heat thousands of æons ago. Nor could great eccentricity have laid down thick-ribbed ice even in the early Archæan ages, when the crust, though hardening, was still too warm to support any but the lowest organisms. Thus we see that maximum eccentricity is merely a determining cause, whose varying effects will depend on the varying conditions.

Croll's theory re-affirmed.

But whether the causes be cosmic or telluric, or, as would seem self-evident, both, complementing and reacting on each other, Croll's last two glacial epochs must be accepted in all their fulness and not attenuated down to the level of narrow preconceived views. They are needed to account for a thousand other facts in the natural history of the Hominidæ, which are apt to be overlooked when this exceedingly wide field of research is surveyed with reversed telescope.

A long period of time needed to meet all the conditions.

It must however be confessed that it is no light matter to keep steadily in view a vast horizon, which in space coincides with the terrestrial periphery, in time stretches back for perhaps a million years; a horizon which covers two successive glacial epochs with an intervening period of 500 to 600 millenniums. And can less be demanded, is it possible to move freely in narrower limits, where we have to consider the overlapping of the geological frontiers (pliocene holding its ground long after pleistocene has dawned); great disturbances of the planetary surface, such as the Indo-African breaking up and reappearing as the Indo-Asian continent; possibly high land rising and again vanishing between Europe and the New World, certainly Britain sinking over 2000 feet below the marine waters and twice severing its connection with the mainland; apparent intermingling in Britain itself and on the Continent of reputed arctic and decidedly tropical faunas, such as shaggy-maned mammoth, large and pigmy hippopotamus,

sabre-toothed lion, huge cave bear, superbly antlered Irish elk, some disappearing, others persisting till joined by fresh arrivals such as the lion, spotted hyæna, bison, musk sheep, and reindeer; lastly the scouring out of great river valleys, such as Nile, Somme, Thames and Rio Negro, down to depths of over a hundred feet, and even fourteen hundred (Nile), to their present levels, while their banks were frequented and their caves inhabited by palæolithic hunters? For man had already arrived, was witness to many of these shifting scenes, looked out on arctic seas strewn with icebergs, fashioned some of his rude flint and quartzite weapons from the very materials borne down by those floating masses, took refuge with those strange beasts in the caves of Devonshire, Derbyshire, France, Belgium, Italy and Germany, and, after the retreat of the ice-stream, associated with them on the sunny plains of inter-glacial times long enough to improve his processes and enable us to distinguish grades of culture even in the palæolithic period, long before the appearance of Neolithic Man on the scene.

And all this before the second and shorter invasion of ice, which again drove man and beast for shelter to their old cavernous haunts. Else how explain the orderly succession of fossil and tool-bearing deposits in those retreats, always ascending from rude beginnings to more perfected workmanship[1], and even to skilful carvings of human and animal forms, on the bones of the extinct or living species themselves, as seen in the Victoria Cave, Yorkshire, Creswell, Derbyshire (well-designed head of a "hog-maned" horse on a rib-bone), and in greater variety and higher artistic skill in the Dordogne Caves, France, still before Neolithic times? And we are asked by professors of geology, who understand better than the lay mind what all this means, to believe that possibly the age of palæolithic man "need not go farther back than from 10,000 to 15,000 years before the time of

[1] The rudeness of the implement, however, is not always a proof of greater age; the neater finish may sometimes be due to a more easily worked material, so that a rough quartzite so hard to manipulate, may be more recent than a fine flint object. "In some part of the older deposits of St Acheul the flint implements are better made than the newer ones found in the lower gravels of the Somme Valley" (Prestwich). But where all are of one or the other material, as is often the case, no doubt arises.

Neolithic Man." If this be so, then Neolithic Man himself must be put back about half-a-million years or so beyond his probable advent, and for this there is no kind of evidence.

Britain twice submerged since its occupation by man.

Appeal is made to a possible, and no doubt probable, more copious rainfall formerly than at present, by which the scouring process might be accelerated. But rainfall must have its limits, say, at the outside 500 or 600 inches annually, as at present on the Garo and Khasi Hills, Brahmaputra basin; else neither man nor beast could exist in the Thames or Somme Valleys. But what effect could any amount of rainfall have, for instance, on the upheaval and subsidence of the land itself, rivers and all, since the arrival of palæolithic man in Britain? For we are in the presence of such phenomena, all admitting that primitive man roamed South Britain, if not synchronously with the gradual subsidence of the late pliocene East Anglian fir, spruce, oak and birch forest beds beneath the German Ocean, at least during the formation of the old Thames deposits in Kent and Essex. Here man lived in association with such fauna as the lion, spotted hyæna and musk sheep, as proved by the flints discovered by the Rev. Osmund Fisher at Crayford, by Messrs Cheadle and Woodward at Erith, and still more by the very workshops where these implements were made, as revealed by the researches of Mr Flaxman Spurrell.

The trace of early man in the last post-glacial deposits.

This must have been in early pleistocene times, before the land-ice had advanced southwards, strewing a great part of the surface with its boulder-clays. As pointed out by Mr W. Shone, the early hunters described by Boyd Dawkins as contemporaries of "the leptorhine rhinoceros, hippopotamus and straight-tusked elephant," were certainly pre-glacial, that is, antecedent to the last ice age. "If Britain were inhabited by this early race of palæolithic hunters they must have traversed large areas of the surrounding country in search of food. In the excitement of the chase it is inconceivable that they should not have left many a lost weapon, which would to-day testify to their existence in post-glacial times. Taking England from the Midlands to Berwick-on-Tweed was ever country so delved to make

roads, harbours, mines, canals, railways, and great towns and cities; yet no trace of this palæolithic hunter or of his contemporaries 'the leptorhine rhinoceros, hippopotamus and straight-tusked elephant' has ever been found over this area upon a post-glacial surface or in post-glacial strata[1]."

Boyd-Dawkins argues that because the raw material of some of the implements appears to have been obtained from the glacial deposits, early man must have made his appearance "after the district [Pont Newydd near St Asaph] was forsaken by the glaciers and the sea[2]." But, as shown by Mr Morton in this and obviously in many analogous cases, the stone may have equally well been obtained "from its original locality, or from moraines in the early period before the district was submerged, as it had been brought near to the cave in the form of boulders[3]." It is obvious that the broad question of *Pre-*, *Inter-* and *Post-Glacial Man* cannot be intelligently argued on such narrow issues as these. But such discussions, which but increase the perplexity of the subject, will doubtless continue to prevail until it is raised to a higher plane of thought by the frank acceptance or denial of Croll's two ice ages with a long intervening warm inter-glacial period, on which everything depends. The point is put very clearly in her treatise on the Paris Basin by Mme. Clémence Royer, who shows that glacial phenomena were of two kinds, one characterised by the presence of floating ice (icebergs) and a considerable subsidence of the land, the other marked by great altitudes and glaciers descending far lower than at present. The chief polar phenomena (first age) occurred "between the miocene and the pleistocene[4]." How could the Swiss glaciers, for instance, descend much lower than at present during the first age, when the plains were under water? Hence their greater former development, admitted by all, must have occurred at some other time, in fact during the second ice age, when the land stood at a much higher level above the sea.

Two ice ages and warm inter-glacial period essential factors.

[1] *Post-Glacial Man in Britain*, in *Geol. Mag.* 1894, p. 79.

[2] *Early Man in Britain*, p. 192. Elsewhere of course this authority admits that the River-drift hunter may have been "quite as likely pre- as post-glacial" (*On the Present Phase of the Antiquity of Man*, Meeting of Brit. Ass. 1882).

[3] *Geology of the Country around Liverpool*, quoted by Shone, *ib.*

[4] *Le Lac de Paris*, *passim*.

So in Britain all the known facts remain inexplicable unless two glacial epochs be recognised. What sort of explanation, for instance, is given of the intermingling of reputed arctic and undoubted tropical and temperate faunas in the same area and at the same time? Prof. Boyd-Dawkins adopts and supports with fresh arguments Lyell's desperate "seasonal-migration hypothesis," a sort of "Box and Cox" arrangement, by which the arctic animals move southwards and occupy the caves in winter, while the tropical move northwards and take their place in summer. "In the summer the lion, Kafir cat, spotted hyæna and hippopotamus would advance northwards; in the winter the reindeer, musk sheep, lemming, tailless hare, glutton and arctic fox would swing southwards[1]." Here it may be asked, were these unwieldy quadrupeds migratory at that time, like birds of passage, and could they (think of the hippopotamus) traverse such vast distances[2] on foot as these do wearily on the wing? How did they manage to hit off arrival and departure so as to avoid complications between carnivora and herbivora? How were such complications avoided on the road between, for instance, fox and sheep? Or are we back again to the naïve days of Noah's Ark processions? And why take the trouble to do all this plodding at all, not once but twice a year, merely to fit in with the views of naturalists, who for the moment ignore or at least overlook the laws of nature and of perspective? For them, peering down the grooves of time, warm inter-glacial periods of long duration get crumpled up between two glacial epochs brought too closely together, and so recede to the vanishing point, leaving everything unexplained, and the actual relations involved in chaos.

Difficulties of the intermingled arctic and tropical faunas.

Lyell's "Seasonal-Migration" theory.

The chief trouble appears to be the reindeer, which in all ethnological writings without exception is inseparably associated with an arctic climate, as a foregone

Long association of

[1] *Evidence afforded by the Caves of Great Britain as to the Antiquity of Man*, *Journ. Anthrop. Inst.* 1877, p. 156.

[2] To be sure the zones are spoken of as "contiguous" (*ib.*). But the respective frontiers alone were contiguous, and large and diversified faunas cannot live on frontiers; they must have elbow-room and spread out over broad expanses to avoid congestion; so the difficulty of distances stands.

conclusion. Yet in these same writings the reindeer is habitually preyed upon by the hyæna, so that after all the complications are not avoided, though other difficulties are created. "In twenty-eight out of thirty-one ossiferous caverns the two [spotted hyæna and reindeer] are found side by side, and in the great majority of these the gnawed bones and antlers of the reindeer show that that animal was the common food of the hyæna" (*ib.* p. 156). What then? Is the hyæna also an arctic animal? But he was in the southern procession. Or was the reindeer a tropical? But he was in the northern, and his arctic habitat is taken for granted.

reindeer and hyæna explained.

Is there then no outlet, for the facts are unquestioned? It would seem that the foregone conclusion must be reconsidered, and indeed put aside. The intimate association of reindeer and hyæna shows that the same climate suited both, and that this climate was not arctic during the association, but at least temperate, for few tropical and sub-tropical animals will stand great cold, while all the arctic can endure a considerable degree of warmth, as in their own short summers, often intensely warm. It would further appear that the reindeer was evolved like the elk in a temperate or warm zone, and is only arctic by pressure and gradual adaptation, so that it has not yet acquired a completely variable coat, like the arctic hare and other earlier hyperboreans (in winter greyish brown on body, white only on neck, belly and hind-quarters). It is identified with Cæsar's *bos cervi figura* (VI. 26), which roamed the Hercynian forest well within the historic period, and still lingered in Caithness down to the middle of the thirteenth century. Even now it ranges in some places as far south as the 50th parallel, that of the Land's End, and those introduced to the London public in 1885 felt perfectly at home in the present British climate.

Almost a more striking case of such adaptation is that of the tiger, who infests the Indian jungle and in Java touches the equator. Yet his range extends northwards to the Amur basin and to the island of Sakhálin, "where broken masses of ice have been known to remain heaped up around the eastern headlands till the month of July," where the thermometer "often remains 60° F.

Analogous instances.

Great range of the tiger.

below freezing-point in January," where "icy rains and raging snow-storms" prevail "for a great part of the year[1]." But no other tropical animal would appear to show such a range as this, without some corresponding special readjustments to the altered environment[2], such, for instance, as that of the *white* panther (*Felis isbis*) of the Great Pamir[3], and that of the *shaggy-maned* mammoth surviving till apparently quite recent times in the Lena basin and other parts of Siberia. But enough has been said to show that there should be little further difficulty about the late pliocene and early pleistocene faunas of West and Central Europe. It is absolutely unnecessary to assume any such unnatural associations as are taken for granted, these apparently incongruous interminglings merely bespeaking long mild or warm inter-glacial periods, lasting a few hundred thousand years on Croll's computation, and needed to account for the many secular climatic and physiographic changes witnessed by early man in the northern hemisphere. It was necessary to dwell on this point, owing to the paramount importance attached to the almost universal presence of the reindeer in the British and neighbouring palæolithic caves, especially by Boyd-Dawkins, who from this fact alone concludes against Geikie (*Ice Age*) that "the perpetual summer hypothesis [the warm inter-glacial period] is untenable" (*ib.* p. 161). But in the next chapter it will be seen that in some places the reindeer was certainly pre-glacial, and consequently at that time belonged to a temperate or warm fauna.

Great age of the flints found in the boulder-clay, plateaux and terraces.

In respect of the boulder-clays and glacial drift, in which so many palæolithic objects are constantly found at various depths on the high plateaux and riverside terraces, it is to be noticed that their age is measured, not by the few feet of surface deposits accumulated *upwards* from the level of the finds, for which a comparatively short period might suffice, but by the extent of the erosions from that level *downwards* to the present level of the river beds. Thus, instead of the slight thickness of

[1] Keane's *Reclus*, vol. VI. pp. 453–4.

[2] Even the tiger, however, shows considerable incipient adaptations, the northern having longer, softer, and *lighter* fur than the southern variety.

[3] A specimen of this rare species is now (1895) to be seen in the Paris Jardin des Plantes.

surface deposits on the high-level glacial gravels, we have to take into account the 80, 100 or 120 feet of excavations by running waters according to the height of the present river-banks. It might be supposed that a gauge of the time needed for such erosions would be afforded by the extent of the scourings, say, in the Thames valley during the historic period (1900 years), or at least during the prehistoric (perhaps 2500 or 2600 years) since the erection of fortified lines or other works by semi-civilized man about the then river level, as at the village of Dorchester below Oxford. But the gauge is useless, because, long as the period is, it has not had time to operate at all. No appreciable change has taken place in the present low level of the Thames even during the longer period, that is, since the bronze age. So also in the Somme valley, where "there is evidence afforded by relics of the Roman and bronze age found in the peat in the bottom of the valley, that the river had not materially lowered its bed since those relics were deposited, and therefore it must have taken an enormous time to work out the whole valley by means of a river which flowed with the same eroding power as at present[1]."

Pre-, Inter-, and Post-glacial man.

It would seem from his division of the glacial epoch (note p. 56), that in discussing the antiquity of man Prof. Prestwich overlooks the two recurrent ice-ages. His division into a pre-, mid- and post-glacial period leaves no room for an *inter-glacial* man, which, at least in Britain, is the main point at issue. His *mid-glacial*, or simply *glacial*, is the point of maximum cold, whereas by *inter-glacial* is understood the long warm period between the two ice ages. Owing to inattention to this distinction much confusion, degenerating into mere logomachy, has been introduced into the discussion. Nobody out of Bedlam would suggest that any organism, much less the highest, had been differentiated during a period of maximum cold with 6000 or 8000 feet of ice on the ground. "Yet a "glacial man" is currently spoken of, as if he had really made his appearance in such an environment. Well might Quinet protest, and refuse to admit that humanity, the loveliest flower of creation, "burst into being amid the swamps and fogs

[1] Col. Lane Fox (Genl. Pitt Rivers), *Jour. Anthrop. Inst.* 1877, p. 178.

of the glacial epoch[1]." And it may be asked, if palæolithic man was such a "glacial organism," why he should have perished in Britain in post-glacial times, or at least before the arrival of his neolithic successor, as assumed by Sir John Evans? Hence there is, or ought to be, no question of a glacial or mid-glacial man, that is, in the sense of his making his first appearance whether by migration or evolution at that untoward moment. If he was there, cowering with his huge associates in the caverns about the frontal moraines of great glaciers, then he must have arrived before the intense cold set in. He did not leave the temperate southern lands to cross ice-strewn seas, in quest of such precarious shelter as Britain then afforded, at a time also when those lands were still connected with the African continent,—Italy, through Sicily, Malta and Pantellaria; Greece through Crete; Iberia across the straits.

The problem restated.

Hence whoever admits glacial, must perforce admit pre-glacial man, for the terms in this connection are practically synonymous. But pre-glacial may obviously be taken in four senses, by which our ideas of man's antiquity will be materially affected. It may either coincide with the first increase of cold, or with the second, or with the warm interval between the two ice ages (inter-glacial), or with the still warmer times antecedent to all glacial phenomena, stretching back through the pliocene to the miocene when the date-palm flourished in Central Europe, and a sub-tropical flora stretched far beyond the confines of the Continent in the direction of the North Pole. To the first and second the same objections must be urged as against glacial man, for all migrations would be suspended during periods of steadily increasing cold. Thus the question is narrowed down to the inter-glacial between 720,000 and 240,000 years ago, let us say 500,000, and the indefinite period antecedent to the first ice age, say a million of years ago. Of course there may be other factors in the problem, such as possible, even probable short recrudescences of cold due to local causes in the inter-glacial period itself[2]. But such disturbances would not

[1] Quoted by Desor, *L'Homme pliocène de la Californie.*

[2] Dr Penck, quoted by Rudler and Chisholm, shows that the ice-sheet "advanced at least *three times* over northern Germany as far as Altenburg

seriously affect the main relations, which would seem on the whole to have been as here stated.

General conclusion.

Most authorities now accept an inter-glacial man, who on the above computation would have appeared, say, half a million years ago, or about a million on the 100 m. base (p. 51), or a quarter of a million or less on proportionately reduced bases. A pre-glacial man in the broader sense, which many cautious writers also concede, and which even on the reduced base would allow about half-a-million, might be accepted but for the fact that it presupposes fully differentiated pliocene Hominidæ present in North-west Europe before the first ice age. That seems a somewhat violent and unnecessary assumption, and it was seen (chap. II.) that in pliocene times nothing beyond a generalised precursor differing specifically from all the present varieties can be looked for, in accordance with the general laws of organic evolution. The most rational hypothesis seems, therefore, that of *inter-glacial Hominidæ*, specialised not less, probably much more, than half-a-million years ago. This inference derived from the foregoing general considerations will be strengthened by a closer study of the primitive Hominidæ themselves, that is of Palæolithic Man, in the next chapter.

Post-glacial man a nondescript.

Nothing has here been said about a "post-glacial" man, for whom so many ardently contend, thinking thereby to limit his term of existence to a few odd thousand years. But the term is obviously equivocal, as on the assumption of two or more recurrent glacial periods, each will necessarily have its post-glacial interlude. Hence a post-glacial man may still have a hoary antiquity, or he may have a less but still a great age, or he may be comparatively modern, according to the particular glacial invasion *after* which he is placed. The term has to be clearly determined, else its discussion leads to nothing but a war of words, seeing that under certain conditions post- and pre-glacial may have precisely the same meaning. A post-glacial man following Croll's first ice age

and Dresden" (*Europe*, Stanford Series, p. 27). In the Alps also proof has now been obtained of "the recurrence of at least three successive periods of great glaciation, separated by relatively long intervals" (Dr H. R. Mill, *Geog. Journ.*, Jan. 1895, p. 68).

will be pre-glacial to Croll's second ice age; that is to say, he will be inter-glacial, as here maintained. In this conclusion it is pleasant to find oneself in accord with such a shrewd and careful observer as Enrico Giglioli, who also accepts "inter-glacial" man, contemporary of *Elephas antiquus* and *Rhinoceros Merkii*, animals at that time characteristic of the Italian fauna[1].

[1] "Sappiamo che l' Uomo esisteva nei primi tempi del Quaternario, in quel periodo interglaciale per l' Europa nel quale vivevano nei paesi nostri l' *Elephas antiquus* ed il *Rhinoceros Merkii*" (*L' Uomo; Sua Antichità*, &c., Florence, 1893, p. 9).

CHAPTER V.

THE ANTIQUITY OF MAN: PALÆOLITHIC AGE.

Palæolithic Man spread over the whole world—But in many places early and later Cultures run in parallel lines, not in time sequence—Hence the Time relations often obscured, objects of human industry not being everywhere tests of age, but only of grades of culture—Even these grades not always clearly distinguished—Palæolithic art not stationary but progressive, and in some respects outstripping that of neolithic times—Materials available for the study of primitive Man: implements, monuments and human remains—Unreasonable objections to implements (palæoliths) as evidence of antiquity—Value of implements determined by their provenance and associations in geological formations or in caves—Stalagmite beds not necessarily a test of age—Kitchen-middens of all ages, some very old, some recent and of rapid growth, hence to be judged on their merits—Human remains reserved for special treatment—Quaternary Man in Britain: Evidence of Hatfield Beds; Kent's Cavern; Brixham Cave; Cresswell and Victoria Caves; Lotherdale and Pont Newydd Caves; Vale of Clwydd Caves; Thames river-drift; High-level gravels; Chalk plateau, Kent; Eoliths from Canterbury gravels, Stoke Newington, &c.—Quaternary Man in France: Somme Valley river-drifts, St Acheul—Grades of Palæolithic Culture—De Mortillet's Four Epochs: Chellian Age, typical implements; Moustierian Age, typical implements; Solutrian Age, typical implements; Madelenian Age, typical implements—The Dordogne School of Art—Placard Cave: Superimposed Culture eras—Evidences of Palæolithic Man in France and Italy—Quaternary Man in Africa (Egypt, Algeria, the Cape); in Asia (Syria, Palestine, Asia Minor, Caucasus, Mongolia, India, Japan); in Australia and New Zealand; in America (Tierra del Fuego, Patagonia, Argentina and Brazil, Mexico, United States and Canada); evidence from the Trenton gravels; Mississippi Basin and other localities; Views of Chamberlin, Holmes, Mason and other conservatives on the value of this evidence; the Calaveras Skull—General Diffusion of Primitive Man throughout North America—The Mound-builders not quaternary; their Culture neolithic, prehistoric and historic.

IN the last chapter our horizon was mainly confined to the northern hemisphere, where the intimate association of primitive man with glacial phenomena has been most carefully studied. Now it must be extended to the southern hemisphere also, thus embracing the

Palæolithic man spread over the whole world.

whole world, which would appear to have been already occupied by the Hominidæ in palæolithic times. If this point can be established, it will afford of itself a strong argument in support of the long period here claimed for man's existence on earth. But the question is beset with snares and pitfalls, due especially to the fact that the very terminology itself does not everywhere connote the same order of sequence, much less the same periods of absolute time. Thus palæolithic implements in the New may in some cases well correspond with neolithic in the Old World, and in all the Continents except Australia, where one order alone exists, various phases of progress go on simultaneously rather than consecutively. The Aymaras and Peruvians had probably two thousand years ago arrived at a somewhat high grade of culture in South America, where the Botocudos and the Fuegians have scarcely yet reached even the Old Stone Age. Similar contrasts are met on the Anahuac tableland, between the long-civilised Nahuas and the still barbarous Otomi highlanders; in Europe between the Slav settlers and their nomad Samoyede neighbours; in Abyssinia between the Semitic Amharas with long historic records and the debased Wito fishers of almost aberrant human type; in India between the haughty Caucasic Rajputs and many utterly savage Kolarian or Dravidian aborigines.

But in many places early and later cultures are synchronous.

Such overlappings of old and new, such persistence of low primitive cultures in the midst of highly advanced populations, tend to obscure the time relations, which are here under consideration. It is obvious, for instance, that implements of the most primitive types, such as those of the Tasmanians, more rudely fashioned than those of the European palæolithic hunters, cannot of themselves be any test of age. They represent no sequences, but only an incipient growth permanently arrested and by adverse conditions prevented from attaining its normal development. Where there is no change, there is no standard by which to measure time. Hence the mistake made especially by some American ethnologists, who have assigned a considerable antiquity to certain native cultures, solely on the ground of the rude implements with which they appeared to be associated. Certain objects, such as flint flakes or

Hence the time relations often obscured.

chippings, if found on or near the surface, or under other circumstances not necessarily involving great age, might have been made at any time, and are now still made by many peoples not yet brought under higher influences.

How misleading such evidence may be is shown by the fact that, as will presently be seen, some of the European palæolithic are more skilfully worked than the far more recent neolithic objects; for the men of the Old Stone Age certainly lived through the greater part of the inter-glacial epoch, and they could scarcely have remained stationary for such countless generations. They undoubtedly made considerable progress within the limits of their primitive culture, and the men of Solutré have left recorded on the bones of extinct species various specimens of their artistic taste and technique superior to any similar works that can be traced to their neolithic successors.

Even culture grades not always clearly distinguished.

But this very progress leads to fresh difficulties, as points are at last reached where it becomes almost impossible to draw the line between the Old and New Stone ages. Although Prof. Boyd-Dawkins argues with much force for a great "abyss separating the Palæolithic Age of the Pleistocene period from the Neolithic Age of the Prehistoric period," he is fain to admit with Mr J. Allen Brown, who takes the continuity view, that the one must be derived from the other "in some part of the world"; only we have "not yet discovered where that part is; it is probably not in Europe[1]." Yet it would seem from the contents of such caves as those of Solutré and Mentone that even in some parts of Europe there is no break but a decided overlapping of the early and later cultures. Speaking of the Mentone finds, Mr A. Vaughan Jennings[2] points out that while the worked ornaments may be neolithic the skeletons, especially those found in 1892, "show osteological affinities to more ancient types." Even the implements, "though not of the type which we in England know as palæolithic, are certainly not any of the usual neolithic patterns." Hence we may here be in the presence of a palæolithic race in Southern Europe, whose culture merges in that of their neolithic successors.

[1] *Journ. Anthrop. Inst.*, Feb. 1894.

[2] *The Cave Men of Mentone*, *Natural Science*, June 1892, p. 278.

Mr Jennings well remarks that "it is likely that the habit of speaking of Palæolithic and Neolithic times, and attempting to draw sharp distinctions between them, carries with it more than the usual evils of all formal nomenclature" (*ib.*). But this of course applies only to the borderlands, where interminglings begin to take place between the two cultures, which in other respects stand widely apart, and must be studied separately.

Even the rude bulbed flints themselves already show some progress in art. These are generally taken as the beginnings of human culture, and Mr Shrubsole[1] and Mr A. M. Bell[1] have produced unbulbed palæoliths from the hill-gravels of Berkshire and from the chalk plateau of Kent, which would seem to be undoubtedly the work of man. They are more advanced than those of the South African Bushmen, the Tasmanians and other modern savages, who are quite incapable of fashioning any of these British *eoliths*, as they have been called. Hence any stone that can be conveniently grasped must be taken as the true starting point, and between this and bulbed flints there is a wide interval, with room for much upward development. At the same time objects which show no clear sign of artificial treatment are of course useless in the study of human progress.

Materials available for the study of primitive man.

It is therefore not only the objects themselves, but also the associated circumstances that have to be considered. Speaking broadly, the materials now available for the study of primitive man are threefold, *his implements*, *his monuments*, *and himself*. The first, from which he rightly takes his name of *Palæolithic Man*[2], are in some respects the most important, as being immeasurably the most numerous and widespread, but chiefly because they often occur under conditions which afford the best proof of their artificers' extreme antiquity. The monuments, if such undesigned structures as shell-mounds or kitchen-middens may for convenience be so

[1] *Jour. Anthrop. Inst.*, May and August 1894.

[2] Gr. παλαιός, *old*, in the sense of *young*, *early*, *pristine*, and λίθος, *a stone*. This convenient term, now universally adopted, is due to Sir John Lubbock, who applies it to the first of the four great eras into which he divides Prehistoric Archæology: "This we may call the *palæolithic period*" (*Prehistoric Times*, p. 2). So *neolithic*, from νέος, *new* (*ib.* p. 3).

named, lie necessarily on the surface, or at most on raised beaches, while the fossil remains of man himself have been found almost exclusively amid the general contents, or at most under the stalagmite floors, of his cave-dwellings. But many of the palæoliths date from the early pleistocene, while some claim to have been discovered in the Suffolk crag (pliocene), and even in the miocene of Thenay; but of this presently.

Unreasonable objections to implements (palæoliths) as evidence of antiquity.

Owing to the abundance of materials for the study of early man, and one might almost say of man's precursor, that have accumulated in every region of the globe, especially during the last few decades, a selection becomes imperative. In the subjoined summary of the available evidence clearness will be consulted by a geographical, and partly chronological, arrangement of some of those objects, whose genuine character seems placed beyond reasonable doubt. Even the best authenticated however have been, and presumably still are, hotly contested by writers and critics, who claim to hold a sort of brief for a narrow orthodoxy which is here singularly out of place. It is a remarkable fact that many of the pioneers in this line of inquiry have been enlightened Roman Catholic or Protestant clergymen, such as Dr Buckland (afterwards Dean of Westminster), who in 1821 startled the public by the discovery of the remains of no less than seventy-five hyænas in the Kirkdale Cavern, Yorkshire, so that it was asked whether some antediluvian menagerie had broken loose in those parts. He was followed by the Rev. Mr McEnery, who in 1825 first drew attention to the "storehouse of antiquity" preserved beneath the stalagmite beds of Kent's Hole; the Rev. J. M. Wells, who led the way in the exploration of the no less famous Creswell Caves, Derbyshire; the Abbé Boucher de Perthes, whose patient researches amid the high-level drift at St Acheul on the banks of the Somme may be said to have established quaternary man; and the Abbé Bourgeois, who went much further, and whose name will always be remembered as one of the ablest champions of tertiary man in Europe. When asked how he reconciled such a prodigious antiquity of man with the Mosaic cosmogony, the last-mentioned was satisfied to reply: "*Je suis naturaliste, je ne fais pas de théologie*," and overzealous partisans of a forlorn cause

might remember that nobody need be *più Papa del Papa stesso.* Yet some of these writers would have us believe that Sabre-tooth, for instance, was still prowling about the Roman castra, or at least the early British camping-grounds, and that the hippopotamus was floundering amid the Lincolnshire fens a short time before the new era, rather than admit that their associate man lived in pleistocene times. "I think," says Mr T. K. Callard, "the time has now fairly come to ask calmly the question, whether finding the works of man in association with *Rhinoceros tichorinus* and mammoth, instead of proving man's great antiquity, does not rather prove the more recent extinction of these mammals[1]"; and again: "The legitimate inference is that he [the Woolly Rhinoceros] was contemporaneous with the potters, Roman, pre-Roman, or Samian; also that he lived when the modern sheep browsed in Creswell dale[1]." Mr Callard is at least logical, for he feels that unless the natural history of the Hominidæ can be made to harmonise altogether with the Mosaic account, a few thousand years more or less cannot matter either way; and that is so.

Value of implements determined by their provenance.

Stalagmite beds not necessarily a test of age.

Here are brought together specimens, so to say, of such objects as are indicated at p. 55 in a general way as characteristic of palæolithic times. Their locality, associations and position, together with the names of the finders or witnesses, are briefly recorded, so that the student may be able to judge for himself of their value as evidence. In doing so it will be well to bear in mind three points: (1) that from position in or under undisturbed boulder-clays and drift of all kinds there is no appeal; such finds must be pre-glacial, that is, inter-glacial (p. 67); (2) that position in cave-earth under thick stalagmite beds does not of itself alone necessarily imply great age; stalagmite growth is irregular, as it depends on variable conditions, amount of rainfall, and quantity of vegetable humus on the roof yielding carbonic acid with which the percolating water dissolves the limestone particles, thus forming the carbonate of lime, which in the cave takes the form of stalactites above and

[1] *The Contemporaneity of Man with the Extinct Mammalia*, &c., pp. 9 and 11.

stalagmites below; but normally the growth is slow, and a thickness of 12 feet, as in Kent's Cavern, may involve many thousand years; (3) that position near the surface may of itself alone imply great age, as in old beaches slowly raised to considerable heights above the present sea-level, and in kitchen-middens such as some of those in Tierra del Fuego (Elizabeth Island), where the shells of which they are composed are extinct, or no longer the same as those of the surrounding waters. Kitchen-middens themselves cover the whole field from palæolithic to modern times, some being very old, others still in progress, so that each has to be taken on its merits. Even size is here no safe guide, as well remarked by Mr Petroff: "The time required for the formation of a so-called layer of kitchen refuse found under the sites of Aleutian or Innuit [Eskimo] dwellings, I am inclined to think less than indicated by Mr Dall's calculations. Anybody who has watched a healthy Innuit family in the process of making a meal on the luscious echinus or sea-urchin, would naturally imagine that in the course of a month they might pile up a great quantity of spinous *débris*. Both hands are kept busy conveying the sea-fruit to the capacious mouth; with a skilful combined action of teeth and tongue, the shell is cracked, the rich contents extracted, and the former falls rattling to the ground in a continuous shower of fragments until the meal is concluded. A family of three or four adults, and perhaps an equal number of children, will leave behind them a shell monument of their voracity a foot or eighteen inches in height after a single meal.... The heaps of refuse created under such circumstances during a single season were truly astonishing in size. They will surely mislead the ingenious calculator of the antiquities of shell heaps a thousand years hence[1]."

Kitchen-middens of all ages. Hence must be judged on their merits.

In consequence of their importance in other connections the human remains (skulls, skeletons, whole or fragmentary) are reserved for special treatment. Their interest is more than antiquarian; they supply data helpful in determining such fundamental questions as the specific unity or diversity of the Hominidæ,

Human remains reserved for special treatment.

[1] Ivan Petroff, *American Naturalist*, July 1882.

inter-racial resemblances and differences, and the origin and cradle of mankind.

Britain.

Quaternary man in Britain.

HOXNE, Suffolk, 1797, palæoliths with bones of huge extinct animals at a great depth in fine brick-earth; the first authenticated evidence of palæolithic man; John Frere, *Archæol.* XIII. 204.

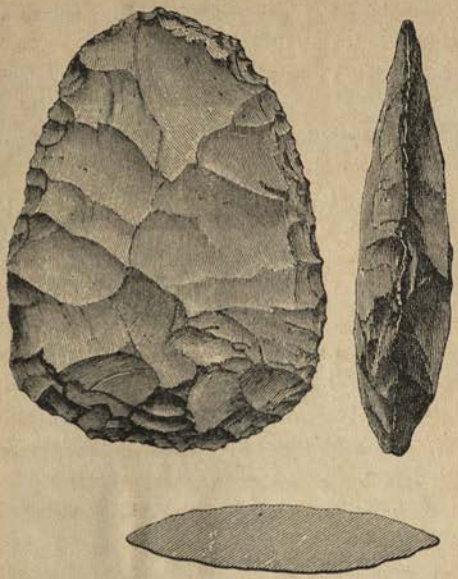
WALTON-ON-THE-NAZE, Essex, shell (*Pectunculus glycimeris*) with rudely engraved human face from the Red Crag formation, first recorded work of art by man; H. Stopes, *Rep. Brit. Ass.* 1881, p. 700.

Hatfield beds.

HATFIELD BEDS (Brandon, Thetford), East Anglia, post-tertiary flint-bearing deposits, stratified sands, gravel and brick-earth underlying boulder-clay of great extent and in some districts proved to a thickness of 60 feet; T. McKenny Hughes, *Journ. Anthrop. Inst.* 1877, pp. 162–65.

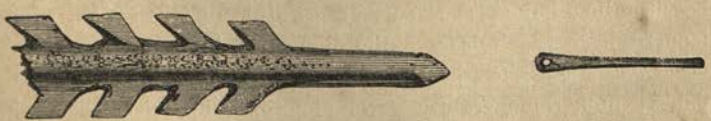
Kent's Hole.

KENT'S CAVERN, one mile from Torquay, Devonshire; 1825–94; downward sequence of deposits: 1. *Limestone blocks* fallen in from the roof, some over ·100 tons, partly cemented with carbonate of lime; 2. *Black mould* 3 to 12 in. thick with remains of living species only, also Roman and pre-Roman objects (potsherds, &c.); 3. *Cave-earth* and *black band* 4 ft. thick underlying granular stalagmite 5 ft. thick, with charcoal, burnt bones, 366 flints delicately made of flakes but never polished, also needle and other bone objects, but no pottery; living and extinct faunas, hyæna, mammoth, cave-bear, horse, glutton, cave-lion, reindeer, rhinoceros tichorhinus, urus, machairodon latidens, voles, Irish elk, hare; 4. *Breccia* derived from neighbouring hills underlying crystalline stalagmite nearly 12 ft. thick, with rude massive implements made of flint nodules, but also a flint flake and a chip embedded in the breccia; fauna chiefly ursine, with lion and fox; inscriptions or graffiti in cave with dates 1604, 1615 and 1688, the oldest with thin stalagmite accretion showing rate of growth about $\frac{1}{20}$ inch in 250 years. Buckland, McEnery, Pengelly (numerous writings), Ralph Richardson (*Transactions Edinburgh Geol. Soc.* 1886–87).



a.

b.



c. *d.*

REMAINS OF PALÆOLITHIC MAN (*from Kent's Cavern.*)

a. Flint implement; *b. bone awl*; *c. harpoon head*; *d. needle.*

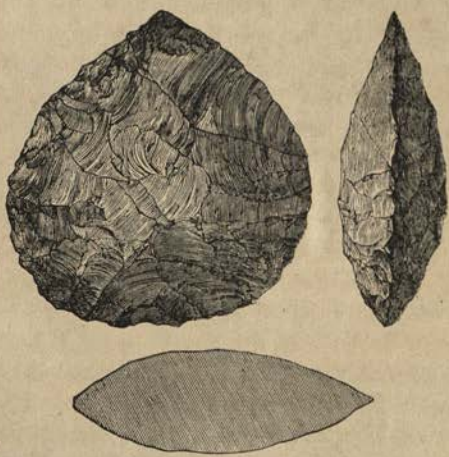
Brixham Cave.

BRIXHAM CAVE, near Kent's Cavern, with similar contents; Pengelly, Else.

TREMEIRCHION CAVE, Vale of Clwyd, N. Wales, 1885; flint lance-head and scraper with cave-lion, mammoth, woolly rhinoceros, hyæna, &c.; Hicks and Davies, *Quart. Journ. Geol. Soc.* XLII., p. 3.

Creswell Caves.

CRESWELL CAVES (Robinhood, Church Hole and Pin-Hole), Creswell Crags, Derbyshire, 1875–6; *upper bed* under stalagmite up to 1 ft. thick; quartzite, flint, ironstone tools, scrapers, spear-heads, bone awls,



RIVER DRIFT IMPLEMENT (*Palæolithic*). *From Santon Downham, Suffolk.*

borers, rib-bone with incised head of hog-mained horse (objection to this that it implied clipping and palæolithic shears invalid, because hog-mane is a natural growth); machairodon, lion, leopard, hyæna, reindeer, woolly rhinoceros, hippopotamus, Irish elk; *lowest bed* 3 ft. thick, red sand and clay; rude quartzite flakes; lion, reindeer, hyæna, mammoth, rhinoceros, Irish elk, horse, bear, wolf; tools of this bed identical with those of Brandon, Bedford, Hoxne, St Acheul and thence south to Toulouse, always associated with reindeer, mammoth, woolly rhinoceros, &c.

VICTORIA CAVE, Settle, West Riding, Yorkshire, on the Ribble; cave so called because opened 1837, year of Queen Victoria's accession; "hyæna bed" under glacial deposits originally 25 now 15 ft. thick; scratched bones, also human or ursine fibula (Burk's "bone of contention"); elephas antiquus, mammoth, hippopotamus, bos primigenius, rhinoceros leptorhinus, bear; Rev. J. M. Mello, Boyd-Dawkins, Tiddeman, Crosskey; the fibula doubtful, but the bones found 1875 and 1876 show clean cuts or markings of human agency; one is small humerus of goat generally supposed to be a late arrival coming in with the neolithic herdsmen, but shown by M. E. Dupont to have associated with rhinoceros, hippopotamus, cave-bear and other extinct fauna (*L'Homme pendant les âges de la Pierre*, p. 197, and letter to Tiddeman in *Jour. Anthrop. Inst.* 1877, p. 168); the hyæna bed is certainly pre-glacial in N. Britain, which may correspond to a post-glacial period in the south, there being evidence of two strongly-marked glacial periods, the earlier reaching far south, the latter arrested in the north of the Midland Counties (Tiddeman).

Victoria Cave.

LOTHERDALE CAVE, near Skipton, same fauna as in Victoria Cave in old river-gravel bed under glacial deposits, but not in the river-gravels of the well-glaciated surrounding district, showing that here the reindeer did not come in with, but preceded the ice-age.

PONT NEWYDD CAVE, Denbighshire, 3 miles from St Asaph, flints and associated extinct fauna in pre-glacial deposits; see p. 63; here are remains of hippopotamus, rhinoceros hemitœchus and elephas antiquus.

Lotherdale and Pont Newydd Caves.

LIFYNNON BENKS, CAE GWYN and STET CAVES. Vale of Clwyd, explored 1884–86 by Dr. H. Hicks and Mr E. B. Luxmore; occupied by pleistocene animals and man before deposit of the surrounding glacial beds; the caves now 400 ft. above sea-level, yet the contents had been disturbed (*remanié*, resorted) by marine action; above the fossil-bearing beds were deposits with foreign pebbles like those of the glacial beds; Stet had been blocked by thick glacial beds necessarily deposited after its occupation by the pleistocene fauna; a small well-worked flint flake in the bone-earth (18 inches

Vale of Clwyd Caves.

below the lowest layer of sand) which extends outwards from the entrance under the glacial beds, which were proved to over 20 ft. The lance-heads, scrapers and other implements appear to be all of same age as the flint flake, and it is evident that the contents (of Stet) had been washed out by marine action during submergence in mid-glacial times and then covered by marine sand and an upper boulder clay (Hicks, *paper* Brit. Ass. Meeting, 1886).

Thames river-drift.

ILFORD, GRAYS THURROCK, Essex; ERITH, CRAYFORD, Kent. Numerous palæoliths of normal river-drift type; early pleistocene; spotted hyæna, lion, &c.; 26 species, of which six only extinct; Rev. Osmund Fisher; Cheadle and Woodward (Boyd-Dawkins, *Nature*, Aug. 31, 1882, p. 436).

High-level gravels.

FINCHAMPSTEAD HILL-GRAVELS, Berkshire, pre-glacial and apparently pre-pleistocene, deposited by a river that has ceased to exist; extremely rude palæoliths ("eoliths[1]"), grooved scrapers, large implements with rounded butt, flints worked at point only; figured by O. A. Shrubsole in *Jour. Anthrop. Inst.* August, 1894, p. 44.

Chalk Plateau.

CHALK PLATEAU, Kent, rolled and other rude palæoliths, like the Berkshire eoliths, described by A. M. Bell, *Jour. Anthrop. Inst.* May, 1894, p. 266 *et seq.*

Canterbury gravels, &c.

CANTERBURY GRAVEL BEDS, STOKE NEWINGTON, PADDINGTON, &c. &c. Numerous eoliths and palæoliths of all types and forms collected and described by Mr Worthington G. Smith in *Man, the Primeval Savage*, 1894. Many of these are so rude that they may well be assigned to a tertiary or eolithic precursor whenever his existence is established in Britain. But "on this question the world needs enlightenment" (Thos. Wilson, *Prehistoric Anthropology*, p. 604).

European Mainland.

Quaternary man in France.

ST ACHEUL, ABBEVILLE, AMIENS. Somme Valley, explored for many years (1841—1860), by Boucher de Perthes, who found numerous palæoliths of ordinary types associated with extinct fauna in undisturbed high-

[1] Gr. ἠώς, dawn, and λίθος, a stone.

level river-gravels; sites visited (1859–60) by Prestwich, Evans, Lyell, Flower, and other eminent English scientists, who verified the Abbé's statements as "established beyond all controversy" (Evans, *The Progress of Archæology*, 1891, p. 5, and elsewhere). The acceptance of palæolithic man on the mainland by competent judges beyond suspicion dates from this event. The Abbé's first actual find was a rudely fashioned flint in a sand-bank at Menchecourt, 1841. Further research has enabled archæologists to divide the palæolithic age more or less satisfactorily into various epochs or sequences according to the faunas associated with the implements or the localities where found. Thus M. Lartet makes three such divisions, those of the cave-bear, mammoth and reindeer, reduced by Dupont to two, mammoth and reindeer. These cannot be accepted because of the intermingling of the faunas (p. 64)[1]. Evans, followed by Cartailhac, Reinach and others, proposes two, the alluvium, and the caverns, as if primitive man first occupied the land, and was then driven by the increasing cold to take shelter in the caves. But from their contents it is evident that the caves were inhabited at all times; and there is no reason why that should not be so.

Grades of Palæolithic Culture.

At present the most generally accepted and perhaps the most convenient division is that of M. de Mortillet[2] into four epochs, or culture sequences, named from the places in France where the most numerous and

de Mortillet's four epochs.

[1] The zoological divisions, as they may be called, have led to endless confusion and misunderstandings, as when de Quatrefages argues that the men of Furfooz (Lesse Valley, Dinant), must have been palæolithic merely because of their association with the reindeer, the lemming and a few other animals assumed to belong necessarily to an Arctic fauna (*Races Humaines, Questions Générales*, p. 74). Yet these men made pottery, deposited offerings with the dead, and were sub-brachycephalic, a combination of characters indicating a distinctly neolithic race. No doubt pottery was also found by Dupont at the *Trou de Chaleux*, same district, under débris over 3 ft. thick that had fallen in from the roof; but that is no test at all of age. Such accidents may happen in a moment at any time, and objects found under such débris in Kent's Cavern, Placard and elsewhere, are often not only neolithic but even historical (British, Roman &c.). The rudest pottery has not yet been traced to distinctly pleistocene and inter-glacial times in Europe.

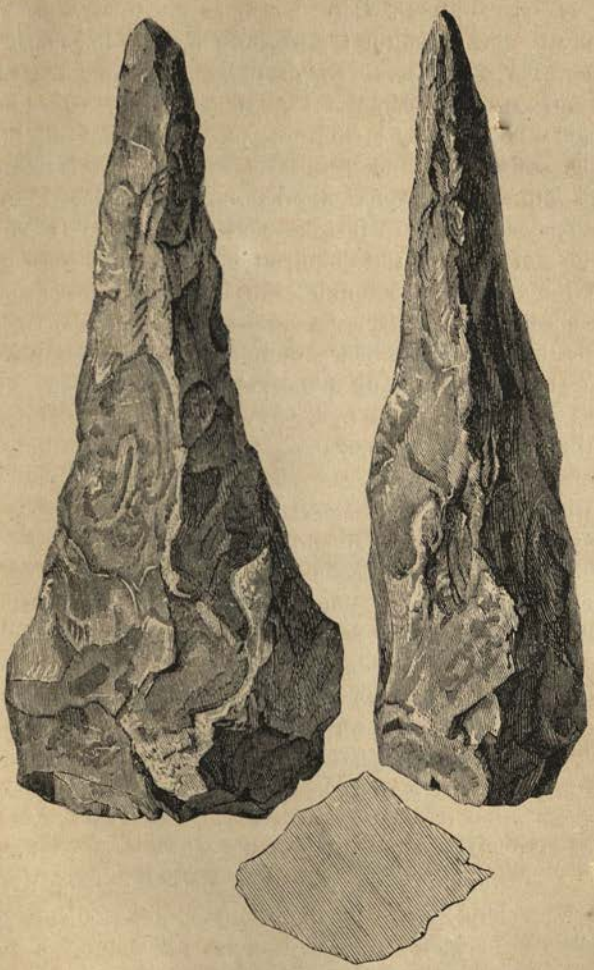
[2] In his classical work, *Le Préhistorique*.

most typical implements of the several epochs have been found. These are the *Chellian*, from Chelles a few miles east of Paris; the *Moustierian* from the cave of Moustier on the river Vézère, Dordogne; the *Solutrian*, from the cave at Solutré near Macon; and the *Madelenian*, from the rocky shelter of La Madeleine, Dordogne. This nomenclature is of course purely conventional, the local names being taken merely as indicating so many types, to which implements have to be referred wherever found. The chief objection is perhaps the fact that the *human remains* from Solutré appear to be not palæolithic but neolithic. At least the skulls are not dolicho- but brachy-cephalic, and "hitherto no certain example of brachycephaly has been found amongst quaternary human remains" (Salmon, *ib.* p. 6). But this question must not be prejudged, and meanwhile de Mortillet's fourfold division appears to hold the field. In any case it has been too widely accepted[1] to be overlooked in any comprehensive ethnological treatise. It takes no account of an eolithic period, which has yet to be established; nor is it probable that the grouping will be found elastic enough to meet all cases with the progress of discovery in every part of the world. It must therefore be regarded, not as possessing finality, but only as a convenient scaffolding, to be removed when it has served its purpose, that is, when the last word has been said on the obscure problem of palæolithic man, his age, evolution and general culture.

Chellian age.

CHELLES, right bank Marne, district Meaux, above Paris; numerous chipped flints, mostly oval or almond-shaped, some more round and even like dirks (scrapers?), cutting edge generally at the point, but also extended nearly round, leaving part for a grip. "I much doubt whether any of them were attached to a handle" (Wilson, *ib.* p. 608). Since their manufacture many have been deeply patined and rusted sometimes even right through, in red, yellow, or chalky white colours by physical or chemical agency, implying great age; uses obviously multifarious at a time when this was almost the only implement invented by man; this "Chellian type" is found almost

[1] To mention one instance, de Mortillet's division has been taken as the basis of Mr Thomas Wilson's excellent *Study of Prehistoric Anthropology*, Washington, 1890.



PALÆOLITHIC HAND IMPLEMENT, (*River Drift*), ½.
From Redhill, Thetford.

everywhere in both hemispheres as far north as the "Arctic Circle" which at that time included Scotland, Scandinavia, North Belgium, N. Holland, N. Germany and N. Russia; it answers generally to the river-drift type of Britain. In the St Germain Museum, Paris, are six cases of these flints from the Chelles sands and gravels, which rest to a thickness of 22 to 26 ft. on the original chalk, some of the objects being coeval with the first deposits, consequently of vast age. A great part of France is covered with the plateau formation through which the rivers have eaten their way down to their present levels. In this formation multitudes of flints of the Chellian type are found; consequently at that time, before the running waters had begun their erosive work, man lived in relatively numerous communities more in the open air than in caves; hence the climate was mild and either pre-glacial absolutely (late pliocene), or inter-glacial between Croll's two great ice-ages (pleistocene). Either assumption answers the conditions, though the absence of Chellian flints from the then Arctic regions (see above) would imply that the period was rather inter- than pre-glacial; otherwise there seems no reason why primitive man should not have ranged northwards, to Scandinavia for instance, at a time when the climate of high latitudes was favourable. But no true Chellian or other palæolithic implements occur in Scandinavia, despite the statements of Zinck and others to the contrary (Wilson, *ib.* pp. 74–5). Ergo, after the Chellian follow what may be called the Cavern periods, that is times when man resorted more to the caves than to the open, as if the first ice-age were now setting in. It will be convenient to keep these periods, as named by de Mortillet, together, as under:—

Moustierian or First Cave Age. Implements.

MOUSTIER CAVE, on the right bank of the Vézère affluent of the Dordogne, above Les Eyzies and Tayac; typical implements, flint point or spear-head left smooth and flat on one side, as struck from the core, pointed and edged from the other side; scraper treated in same way, but with edge rather upon the side than at the end, as in all succeeding epochs; similar objects occur in the river-gravels, but are found in the caves at such depths and in such associations as to suggest long occupation during glacial

times with a fauna more like the present, all the now extinct forms having already disappeared. In fact some of these flint implements, which from their form are treated by the French geologists as palæolithic, "would be included in the second division, or neolithic, in England[1]."

Solutrian or Second Cave Age. Implements.

SOLUTRÉ CAVE, Macon district, Sâone-et-Loire; flint implements of laurel-leaf and other patterns, showing an immense advance on those of the previous age, both in variety of form and especially in finish, in this respect scarcely ever since rivalled, certainly never surpassed; large thin spear-heads; scrapers with edge no longer on the side but on the end; flint knives and saws, but all still chipped, never ground or polished; characteristic are the long spear-points with tang and shoulder on one side only; also bone or horn awls or borers. These beautiful objects occur in nests or *caches* as in the United States. The flakes chipped off are sometimes "so long and thin as to resemble shavings rather than chips" (Wilson, p. 615). The fine laurel-leaf patterns defy imitation, hence have never been forged like so many other antiques. Besides Solutré they occur in several other caves, such as Rigny-sur-Arroux (Sâone-et-Loire), Grotte de Garges (Vaucluse), and Grotte de l'Église (Dordogne).

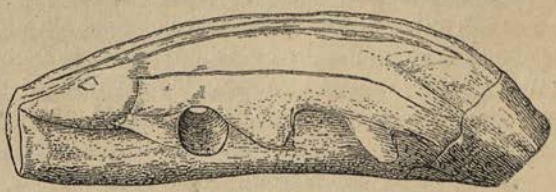
Madelenian or Third Cave Age.

LA MADELEINE ROCK SHELTER, on the Vézère, about midway between Moustier and Les Eyzies; a very long epoch represented by numerous stations, whose varied contents show continued progress in the arts and general culture; scrapers, gravers, saws and knives of flint

[1] J. Allen Brown, *Jour. Anthrop. Inst.* 1893, p. 92. This palæontologist, it may be mentioned, proposes (*ib.* p. 94) four divisions instead of the two commonly accepted: (1) *Eolithic*, roughly hewn pebbles, nodules &c., of the chalk plateaux older than the present hydrographic system; (2) *Palæolithic*, flints of the higher river drift of the present valleys, and oldest limestone cave breccias; (3) *Mesolithic*, flints of better form intermediate between the palæolithic and (4) *Neolithic*, polished or delicately worked implements like those from the Danish tumuli, dolmens, &c. These divisions will probably be accepted when sufficient data have been collected and correlated to clearly distinguish between the several epochs. But even then there will always be interminglings and overlappings.

flakes; borers, needles, "harpoons," hooks and diverse ornaments of bone, horn and ivory; but specially remarkable are the spirited carvings in the round, or etchings on stone, bone or horn, of seals, fishes, reindeer, mammoths and other animals, including man himself, besides decorative work in straight, curved, or dotted lines, zigzags, festoons or herring-bone pattern. This palæolithic "school of art" stands apart, being almost exclusively confined to the Dordogne district, although, as seen, analogous specimens occur in Britain (Creswell), also in Belgium (Cave of Goyet), and a few other places. Besides La Madeleine, the chief stations of this epoch are Les Eyzies, Laugerie Basse and Gorge d'Enfer, in Dordogne; Grotte du Placard, in Charente; and others in South-West France. Noteworthy are a mammoth engraved on a frag-

Typical implements.



a.

b.

PALÆOLITHIC ENGRAVINGS.

a. Of pike, cut on canine tooth of bear, Duruthy Cave.

b. Of aurochs, trees, snake etc. on reindeer horn, La Madeleine.

ment of its own ivory tusk, a dagger of reindeer horn with handle in form of a reindeer, a cave-bear incised on a flat piece of schist, a seal on a bear's canine, a fish admirably carved on reindeer horn, and a scene also on reindeer horn, showing horses, aurochs, trees, and a snake biting a man's leg. The man is naked, and this with the horses and snake[1] suggests a warm climate, despite the "Arctic" reindeer. Horses as well as reindeer abounded in this and the previous epoch, and the Solutré cave district alone yielded the fossil remains of about 10,000 of these animals. Sufficient attention has not been paid to such points by those ethnologists who regard all the cave men as "glacial." For the "arctic reindeer epoch" of many French writers might be substituted a "temperate horse epoch" more in harmony with the prevailing relations. In many instances art is displayed for its own sake, as in the embellishment of the so-called "bâtons de commandement," apparently a kind of mace or emblem of authority, from the Madeleine and Goyet caves. But this culture suffered a sudden eclipse either before, or coincidently with, the irruption of the rude neolithic peoples into Western Europe, just as on the Anahuac plateau the Toltec culture disappeared before the invasion of the Chichimec barbarians, and was not again revived till two or three centuries before the arrival of the Conquistadores.

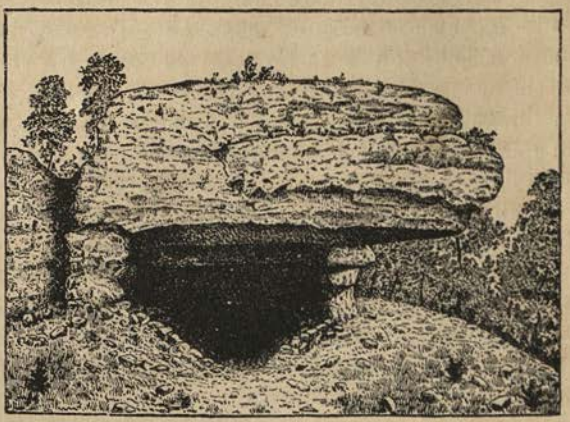
Placard Cave. Superimposed Culture eras.

PLACARD CAVE, on the Tardoire affluent of the Charente river, is the "Kent's Cavern" of France, its several layers revealing like it the successive phases of troglodytic culture from the Moustierian upwards. In the accompanying cut is seen the grotto with a sectional view drawn to scale of the several beds, which in descending order are as under:—

AAA. Débris fallen from roof at various periods and separating the different beds; represents the stalagmite floors of limestone caves. B. Layer of same with thin streak of clay interposed; no remains in A or B. C. Top implement-bearing beds 15 in. thick; polished flint hatchets, barbed spear-heads, bones of living species, all neolithic. D. E. F. G. All with Madelenian objects

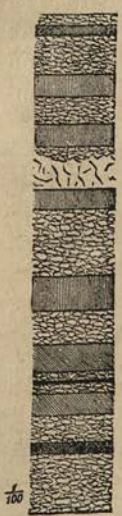
[1] It has been called an "eel"; but the action shows that it is clearly a snake.

and corresponding species; altogether, with intervening strata, about 10½ feet thick. H. Late Solutrian beds; spear-heads with



THE PLACARD CAVE.

shoulder on one side. I. Earlier Solutrian bed with laurel-leaf flints.



SECTION OF FLOOR.

K. Moustierian bed, with typical pointed flint.

Note that the second layer A (débris from roof) is 28 in. thick, so far implying non-continuity and a considerable gap between the latest palæolithic (D) and the neolithic (C) era. Similar evidence is afforded by other caves, such as *Laugerie Haute* (gap 50 in.), and *Grotte de la Vache* (stalagmite gap 21 in.). But these gaps, by which many eminent archæologists have been influenced, do not necessarily imply corresponding breaks between palæo- and neo-lithic times. They merely point at gradual improvement in the climate after the retreat of the last ice-sheet, thus enabling the men of the New Stone Age to live more in the open, and obliging them to resort less frequently to the caves, which were at last abandoned altogether. In other words, early neolithic man was of less troglodytic habits than his immediate Madelenian precursor of

post-glacial times. So far it may be inferred that in Britain and West Europe primitive man appeared after the retreat of Croll's first ice-sheet, and lived throughout the whole of the inter-glacial period, surviving in some places till the retreat of Croll's second ice-sheet, when he was gradually replaced and no doubt partly absorbed by early neolithic man arriving after the final disappearance of glaciation everywhere below the Alpine uplands.

Evidences of Tertiary Man in France, Portugal and Italy.

THENAY, near Pontleroy, Loir-et-Cher, flints extracted by l'Abbé Bourgeois from the miocene beds (knife, scraper, point); claimed by him to be of human workmanship, but claim generally disallowed, and doubted by de Quatrefages (*ib.* p. 93). These finds first raised the question of tertiary man in Europe, further proof of which was adduced in 1863 by M. Desnoyers, who produced from the gravels of

SAINT-PREST, near Chartres, various incised bones, undoubtedly worked by man and associated with elephas meridionalis and rhinoceros leptorhinus; site examined by Lyell, but the beds appear to be rather old quaternary than true tertiary. Better evidence was brought forward by M. Rames from the upper miocene of

PUY-COURNY, near Aurillac, Cantal; by Senhor Ribeiro from the same formation at

OTTA, Tagus Valley, near Lisbon; and by Signor Capellini from the pliocene of

MONTE-APERTO, near Siena. Apart from human remains, the proofs of tertiary man in Europe appear at present to be limited to these finds, the most convincing of which are those of Rames, of some of which it is admitted that "had they been found in quaternary beds no one would have hesitated to regard them as intentionally carved" (de Quatrefages, *ib.* p. 93). This carries the question back, not merely to a pliocene, but to a miocene (mid-tertiary) precursor of the Hominidæ. Such a precursor would be necessarily intermediate between the generalised pliocene precursor, who must be accepted, and some higher anthropoid forms than any of those now existing. Such a being must no doubt also be postulated; but he could scarcely

be regarded as distinctly human, though possibly endowed with sufficient intelligence to work the rude flints produced by M. Rames.

Africa.

Quaternary Man in Africa.

NILE VALLEY, opposite Thebes, chert implements from the undisturbed river-drift, and from the breccia in which are hewn the royal tombs of the wady Bibân el-Molúk; Pitt Rivers, *Journ. Anthrop. Inst.*, June 1881.

ABYDOS DISTRICT, 30 miles north of Thebes, a limestone plateau 1400 feet above the present Nile level, explored (1894–95) by Prof. Flinders Petrie and described by him as "the home of palæolithic man." Here were found in great numbers large massive flints, beautifully worked and perfectly unworn, "of exactly the same forms as those of France and England. The enormous age of these is shown by their black-brown staining, while others 5000 years old by their side show scarcely a tinge of weathering. Besides these, other flints of a later palæolithic type are found embedded in the ancient gravels of the former High Nile, so that the Nile still rolled down as a vast torrent fifty times its present volume at the latter age of palæolithic man" (Paper read before the *Royal Society*, Edinburgh, April, 1895).

CAIRO, fine river-drift hatchet found 1879 on the road to the petrified forest 3 miles from the city, made to be grasped, not fixed to a handle (H. Stopes, *Rep. Brit. Ass.*, 1880, p. 624).

GAFSA and surrounding district, Tunisia; successive epochs of palæolithic culture (Chellian, Moustierian and Solutrian); workshops and immense numbers of typical implements, some found in the undisturbed gravels 16 ft. below the surface, as on the right bank of the Wed-Baiash $1\frac{1}{4}$ mile north of Sidi-Mansúr; no pottery or polished stones, but fragments of friable bones carved with fine parallel lines, and one with the rude outlines of an animal's head. The long sojourn of palæolithic man in Tunisia west from Gulf of Cabes (Syrtis Minor) is placed beyond all

doubt by the explorations of Dr R. Collignon[1] and Dr Couillault[2].

TLEMCEN, near Oran; KOLEA, west of Algiers, and other parts of Algeria numerous flints of distinct palæolithic type, but mostly surface finds; Lubbock, Bleicker, Hayness.

CAPE COLONY, NATAL, stone implements from every part of this region, some (Natal) undoubtedly palæolithic of river-drift types (knives, scrapers, spear-heads, &c.); W. D. Cooch (illustrated memoir), J. Sanderson.

Asia.

SYRIA, palæolithic hatchet, found 1842 by the Abbé Richard between Mt Tabor and Sea of Tiberias.

PALESTINE, another of same type found 1880 between Jerusalem and Bethlehem by H. Stopes (*Antiquity of Man*, p. 7). "This axe has been chipped and worn in use, and the chips have during the vast lapse of time it has been exposed to the weather assumed that peculiar appearance that lengthened exposure alone gives" (*ib.*). Quaternary Man in Asia.

LEBANON, quaternary station with palæolithic tools associated with partly extinct fauna (Louis Lartet).

ASIA MINOR, hatchet of river-drift type from Abydos (Lubbock).

CAUCASUS, cave 30 miles from Kutais, human remains with cave-bear and other large fauna (Prince Mossa Shvili, M. Navrotsky).

MONGOLIA, arrow-heads from quaternary beds near Tul-she-san-hao (Abbé Armand David).

INDIA, numerous palæoliths from pleistocene beds in every part of the peninsula, generally of same types as the European river-drift; some near Madras under thick beds of laterite (Medlicott and Blandford); quartzite hatchet from the fossiliferous undisturbed beds of the Narbadda (Hacket); agate knife from

[1] *Les âges de la pierre en Tunisie*, in *Matériaux pour l'histoire primitive et naturelle de l'homme*, 3rd series, Vol. IV., May, 1887.

[2] *Stations préhistoriques de Gafsa (Tunisie)*, in *L'Anthropologie*, v. 5, 1894, p. 530 *et seq.* "On peut donc en conclure que les populations primitives qui taillaient ces silex ont été très répandues dans toute cette région du Sud tunisien, à l'époque où s'opérait le lent comblement des vallées" (*ib.* p. 533).

corresponding pleistocene beds of the Godavery (Winne); both associated with hippopotamus, elephas insignis and other large extinct (pliocene?) fauna.

JAPAN abounds in caves and shell-mounds of great age, studied by John Milne (*Stone Age in Japan, Journ. Anthrop. Inst.*, May, 1881); but not yet brought into clear relation with pleistocene times in Europe; of the caves there are vast numbers, many opening southwards and supposed to be artificial. "It is more than probable that they offer as wide a field for the research of the cave-hunter as caves do in any other country, and from them a rich harvest of facts relating to prehistoric times has yet to be reaped." The shell heaps of Nemuro, Hakodate, Omori near Tokyo and others, stand 20 or 30 ft. above the present sea-level, and those of Omori lie about half a mile from the present shore line (*ib.* p. 414).

Quaternary Man in Australia.

AUSTRALIA, numerous *mirrnyongs* (ash-heaps, shell-mounds, &c.) mainly confined to the eastern and southern regions; some very large and evidently of great age; one near Cape Otway 300 × 50 ft. and 16 ft. high. "It must have taken ages for the fish-eating natives of the coast to build up such heaps" (Brough Smyth, *Aborigines of Victoria*, II. p. 234, and Vol. I. p. 239): "the layers of which they are composed point clearly to the slow and gradual heaping-up of small quantities of material from time to time." Near the south-west coast between Port George the Fourth and Hanover Bay there is "a complete hill of broken shells, which it must have taken some centuries to form, for it covered nearly, if not quite, half an acre of ground, and in some places was 10 ft. high" (Grey, *North-Western and Western Australia*, I. p. 110). E. M. Curr, who has examined a great many of these "ovens," states that "neither stone arrow-heads nor fragments of pottery are found in them" (*The Australian Race*, III. p. 677). But the "stone-circles" mentioned in Chambers' *Monuments of Unrecorded Ages* as "numerous in Victoria," have no existence; "there are no such circles, and never were" (Smyth, II. p. 235). On the other hand vast numbers of stone implements (hatchets, knives, adzes, scrapers, pounders, points, &c.), made of diorite, basalt, quartzite, granite, porphyry, obsidian, lava, sandstones, &c.), occur almost every-

where, but always on or near the surface. "It is scarcely possible to disturb any large area of the natural surface in Victoria without lighting on some of these weapons....Broken tomahawks, broken adzes, chips and flakes of basalt, and near the coast old *mirrn-yong* heaps, which for ages have been covered with drift-sand [blown sand] are from time to time discovered. All these show that the Aboriginals, living in exactly the same state as they were found when Australia was first discovered, have been for periods incalculable the possessors of the soil....But though some hundreds of square miles of alluvia have been turned over in mining for gold, not a trace of any work of human hands has been discovered. Some of the drifts are not more than three or four feet in thickness (from the surface to the bed rock), and the fact that no Aboriginal implement, no bone belonging to man, has been met with, is startling and perplexing" (Smyth, I. p. 364). And although some implements are chipped, others ground and polished, the distinction is rather one of locality and material than of age. "There is no method by which we can distinguish a difference of period if we examine stone implements" (*ib.* p. 360)[1]. Nevertheless a strong proof of vast antiquity answering perhaps to that of palæolithic man in the northern hemisphere, is afforded not only by all this cumulative evidence, but also "by the fact that in sinking wells and other excavations in the Hunter Valley, flat rocks with axe-marks on their surfaces have been discovered at the depth of 30 feet or more below the present surface-level, and covered with drift or alluvium, which in all probability must have taken thousands of years to accumulate" (Bennett, *History of Australian Discovery and Colonization*, p. 263, quoted by Smyth).

In NEW ZEALAND *three* stone ages are distinguished by F. R. Chapman, the last being the contemporary, associated

[1] So also R. Etheridge: *Has man a Geological History in Australia? Proc. Linn. Soc.*, N. S. Wales, 1890, p. 259; and E. H. Giglioli: *Le Età della Pietra nell' Australasia*, &c., 1894, p. 4: "Il tipo e la fattura delle arme e degli strumenti di pietra degli Australiani, e dico ciò per osservazioni mie proprie su un esteso materiale nella mia collezione, rappresentano oggi tutti gli stadii possibili dal più rozzo tipo paleolitico al saggio più perfezionato...dell' epoca neolitica."

with the working of nephrite or greenstone by the Maoris (*Trans. N. Zealand Inst.*, 1891, p. 479). The first may be referred to the Papuan predecessors of the Maori, the "Moa-hunters," although the ancestors of the Maori themselves appear to have hunted some species of dinornis. In any case its correlation to the extinct pleistocene fauna of the northern hemisphere remains to be determined.

America.

Quaternary Man in America.

TIERRA DEL FUEGO; kitchen-middens ancient and modern, both of prodigious extent, and formerly much larger, having suffered greatly from marine erosions. The former, after every allowance is made for rapid accumulation, are shown from their contents and magnitude to be of vast age, and considering their position at the southern extremity of the Continent, seem alone sufficient to solve in the affirmative the question of quaternary man in the New World. What remains of the shell-heap on Elizabeth Island is nearly a mile long, stands 24 ft. above the present sea-level, has a mean thickness of nearly 4 ft., and is covered with a layer of fine sand from 24 to 28 in. thick, above which is a layer of vegetable humus with a luxuriant herbaceous growth. Lovisato, who has carefully studied these Fuegian shell-mounds, shows that that of Elizabeth Island was submerged, during submergence received its layer of marine sands, and was then upheaved to its present level. He also shows that the shells (*patella*, *mytilus*) forming a great part of the contents are different from and much larger than the corresponding species now inhabiting the surrounding waters[1]. Similar phenomena are presented by the mound at Ushwaya in Beagle Channel, and by the other ancient middens strewn over the Archipelago.

PATAGONIA. Here as in so many other parts of the New

[1] "Le valve delle grandi patelle e le altre dei grossi mitili del deposito non si trovano oggigiorno su quelle spiaggie, nè sulle circostanti, ove patelle e mitili, che pur vivono ancor in quel mare sebbene non abbondanti, sono piccolissimi" (*op. cit.* p. 11). This argument will appeal forcibly to those palæontologists, who are well aware how very slow is especially the growth and evolution of these organisms.

World the great difficulty arises, not from lack of material, of which there is a superabundance, but from the intermingling or close juxtaposition of types, the persistence of old in the midst of new forms, so that it often becomes impossible to discriminate between remote and later epochs. In the Western Hemisphere there are few Creswell or Placard Caves, where the relics of the past follow in orderly succession, as if arranged in cabinets for the convenience of the antiquarian student. Thus the Rio Negro Valley, Patagonia, may rather be compared to an ill-assorted ethnological museum, where the naturalist, Mr W. H. Hudson, wanders about the abandoned sites of old and recent habitations profusely strewn mostly on or near the surface with evidences of the presence of primitive and later generations. Nevertheless, thanks to denudation and weathering here and there, "the sites of numberless villages[1] of the former inhabitants of the valley have been brought to light. I have visited a dozen such village sites in the course of one hour's walk, so numerous were they. Where the village had been a populous one, or inhabited for a long period, the ground was a perfect bed of chipped stones, and among these fragments were found arrow-heads, flint knives and scrapers, mortars and pestles, large round stones with a groove in the middle, pieces of large polished stones used as anvils, perforated shells, fragments of pottery, and bones of animals....The arrow-heads were of two widely different kinds —the large and rudely fashioned, resembling the palæolithic arrow-heads of Europe, and the highly-finished or neolithic, of various forms and sizes. Here there were the remains of the two great periods of the Stone Age, the last of which continued down till the discovery and colonization of the country by Europeans. The weapons and other objects of the latter period were the most abundant, and occurred in the valley; the ruder were found on the hill-sides, in places where the river

[1] Such sites, the *paraderos* of the Hispano-American writers, are scattered in great numbers all over Argentina. Although the contents are mostly those of neolithic times, some, such as that of the Marco-Diaz Valley (612 × 408 feet), must have been occupied either continuously or at intervals for untold generations. Paradero is the Spanish "sojourn," "residence," from *parar*, to stop, or sojourn.

cuts into the plateau. The site where I picked up the largest number had been buried to a depth of 7 or 8 feet; only where the water after heavy rains had washed great masses of sand and gravel away, the arrow-heads with other weapons and implements had been exposed. These deeply-buried settlements were doubtless very ancient[1]." This passage, written by a good observer and naturalist, reads like a description of the river-drift finds in the Thames and Somme Valleys, and prejudice alone will refuse to accept it as proof of quaternary man in America. Here also the argument is strengthened by the evident change of climate, which at present is far too dry to support the numerous village communities formerly dotted thickly over the now arid Patagonian wastes. Moreno's investigations also establish quaternary man in Patagonia.

ARGENTINA, BRAZIL. Here the existence of quaternary man seems to be established by the researches of Ameghino, Burmeister, Lund, Moreno and other eminent palæontologists, who have produced not only the works but also the remains of fossil man himself, especially from the Brazilian caves and from the Pampas beds, which latter answer partly to the pleistocene, partly to the pliocene, formations of Europe. The question of tertiary man has even been raised by Ameghino, on the ground that these beds all belong to the same period, which he refers to "pre-glacial," that is, late pliocene times. But Burmeister, whose views are confirmed by Sören Hansen, shows clearly that the Pampas formations belong to two distinct epochs, the lower alone being pre-glacial, the upper quaternary; and as all agree that the upper alone contains human remains and traces of human industry, the question may be regarded as settled in the same sense that it has been settled in Europe and elsewhere—tertiary not proven, except for a postulated generalized precursor; quaternary proven for differentiated Hominidæ. The chief localities that have

[1] *Idle Days in Patagonia*, pp. 37—39. In the same Rio Negro Valley Moreno found (1874) at a depth of 13 ft. a skull artificially deformed like those of the Bolivian Aymaras (*Bull. de la Soc. d'Anthrop.* 1880, p. 490). But against this supposed widespread practice of cranial deformation a warning note is raised by Juan Ignacio de Armas in a paper read before the *Havana Anthrop. Soc.* Nov. 1885, on the so-called deformed Carib crania of Cuba.

yielded evidence of palæolithic man are: *Lagôa Santa* district, Minas Geraes (Upper S. Francisco basin); Sumidouro and other limestone caves, explored by Claussen, and especially by Lund[1], who here found the fossil remains of over 30 human beings and numerous stone implements associated with an extinct fauna answering to that of pleistocene times in Europe; all the skulls except one are dolicho- and hypsisteno-cephalic (long, high and narrow). *Rio Carcaraña*, Parana basin (Buenos Ayres Pampas); similar remains, including one skull found by Roth under the carapace of a Glyptodon near Pontimelo, but of brachycephalic type. Some of the fauna present characters like those of the tertiary period in Europe; such is the mastodon, which however persisted in America long after its extinction elsewhere. Hence "there would be nothing strange in the existence in America of a mammalian fauna apparently tertiary, but contemporary with our quaternary times" (Quatrefages, *op. cit.* p. 104). Thus here again the proof of tertiary man breaks down. On the other hand the two different Lagôa Santa and Pampas types seem to attest the existence of human varieties (the Hominidæ) in South America in the quaternary period[2]. *Samborombon*, south-east of Buenos Ayres; human skeleton and megatherium discovered 1882 by Carles (see p. 34). *Santarem* district and *Marajo Island* near Para; extensive shell-heaps with skulls of same type as the present Tapuyo populations of Amazonia, also mounds affecting the forms of alligators and other huge animals

[1] *Mémoires de la Soc. des Antiquaires du Nord*, 1845, and numerous other communications. This palæontologist, who devoted many years to the exploration of the hundreds of caves in the Lagôa Santa district, has determined as many as 115 species of fossil mammals, including a huge ape, a jaguar twice the size of the present Brazilian species, a cabiai as large as a tapir, and a horse like that of the eastern hemisphere, but everywhere extinct in America before the discovery; all these in close contact with fossil man.

[2] "Les grandes différences que présentent les crânes, les instruments, les inscriptions des rochers, prouvent que ces populations appartenaient à des souches diverses. Le continent qui se termine en une longue péninsule formait comme une sorte de nasse dans laquelle les peuples refoulés des contrées du nord venaient se prendre les uns après les autres, et souvent s'entre-exterminer. L'Argentine est une vaste nécropole de races perdues." Reclus (after Moreno) XIX. p. 672.

(the tribal totems?), resembling the mounds of the Mississippi basin[1]. *Quixeramobim Valley*, Jaguaribe basin, Ceara; skull of great age found in a cave, of doubtful Tupi type[2]. *Santa Catharina* seaboard; hundreds of *sambaqui* (properly *Tambaqui*), that is, shell-mounds with human remains of various types, palæoliths and other objects of primitive industry, mostly of basalt, but also of porphyry, quartz and meteoric iron. One of the skulls found by Loefgren in a mound 6 miles west of São Vicente resembled those of the Lagôa Santa caves. The mounds themselves must be of great age, some being overgrown with huge forest trees or buried beneath the drift washed down by ancient rivers. Many are still over 300 feet wide by 50 high, although for over 200 years they have been utilised by the lime-burners of Rio Santos and other towns 40 or 50 miles inland[3].

MEXICO; fossil human remains found 1884 at foot of the *Peñon de los Baños* on the saline plains near the city of Mexico, associated with extinct fauna (elephant, horse, &c.) beneath a lava-stream, indicating a time when the neighbouring Texcoco lagoon stood 10 feet higher than its present level and when igneous eruptions of remote pre-historic times had not yet taken place; elsewhere numerous palæoliths also associated with the elephant (*E. Colombi*) point at the presence of man on the Anahuac plateau at a time corresponding to the European interglacial period.

In the UNITED STATES and CANADA, this period is clearly defined between Croll's ice-ages, the first preceding, the second following, the formation of the present Ohio valley; both indicated respectively by the normal trend from north-east to south-west, and from north to south, of the usual phenomena due to the grinding action of the ice-sheets. In a summary such as this it would be idle to follow all the vicissitudes of the battle that

[1] F. von Martius, *Ethnographie Brasilien's*. Many of these vestiges, however, are distinctly neolithic or even later, and apart from their associations none would suffice to establish the presence of quaternary man in Amazonia.

[2] Lacerda and Peixoto, *Contribuições para o estudo anthropologico das raças indigenas*.

[3] "Les sambaqui datent certainement d'une époque reculée...La somme de travail que représentent ces amas est vraiment prodigieuse" (Reclus, XIX. p. 359).

has not yet been fought out over the presence of palæolithic man in the North American Continent. But speaking generally it may be stated that the evidence brought forward even by such eminent archæologists and geologists as Abbott, Putnam, Wilson, Powell, Cook, Shaler, and others studying the question on the spot, is not yet regarded as conclusively establishing in this region the presence of primitive man contemporary of the European pleistocene Hominidæ. The proofs chiefly relied on consist partly of innumerable surface finds from every part of the United States and from some Canadian districts (of which presently) and partly of numerous palæoliths identical in form with those of the Thames and Somme river-drifts, taken from apparently undisturbed glacial deposits of corresponding age. Such are those of the Delaware valley near Trenton, New Jersey, where Dr C. C. Abbott has year after year brought to light from depths of 5 to 20 feet scrapers, points and other rude implements of hard argillite, one even showing glacial scratchings exactly like those of the striated rocks among which it was found. Some were taken *in situ* in the presence of such unimpeachable witnesses as Putnam, Shaler, Dawkins, Haynes, of whom the last mentioned writes that "speaking from an archæological stand-point, I do not hesitate to declare my firm conviction that the rude argillite objects found in the gravels of the Delaware river at Trenton, N.J., are true palæolithic implements[1]." The Delaware is a much larger river (350 miles long) than either the Somme or the Thames, and when its banks were assumed to be frequented by primitive man its bed stood 50 feet higher than at present.

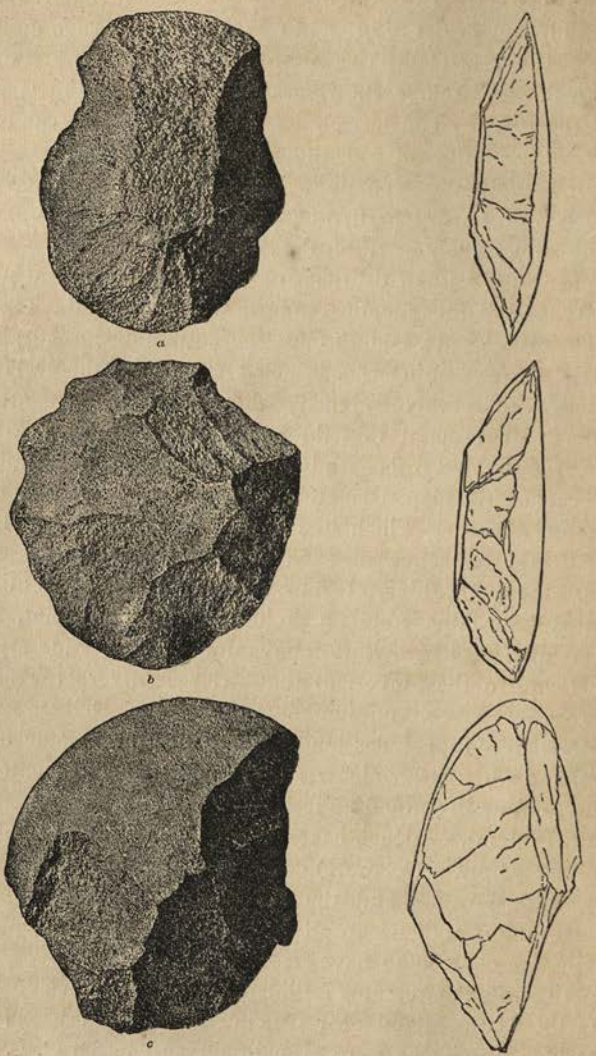
Evidence from the Trenton gravels,

Farther inland, evidence has been adduced from a few places, such as Claymont (Delaware), Upland (Chester County, Pennsylvania) and the glacial gravels of Jackson County, Indiana, in all of which districts palæoliths are claimed to have been found *in situ* by Dr Hilborne T. Cresson of Philadelphia; the extensive gravel beds of the Little Miami near Cincinnati, Ohio, also of glacial origin, where specimens were brought forward by Dr C. L. Metz

the Mississippi Basin, and other localities.

[1] Quoted by Dr Abbott in *Evidences of the Antiquity of Man in Eastern North America*, 1888, p. 10.

33566



PALÆOLITHIC IMPLEMENTS FROM DISTRICT OF COLUMBIA. $\frac{1}{3}$.

at a depth of nearly 30 feet below the surface, so that "we can henceforth speak with confidence of inter-glacial man in Ohio" (Abbott, *ib.* p. 6); the drift at Little Falls, Minnesota, where in 1879 Miss Babbil is stated to have found rudely worked quartzes deeply buried beneath the glacial deposits; the Lake Lahotan valley, north-western Nevada, where an obsidian spear-head apparently palæolithic was found by Prof. McGee.

At the meeting of the American Association for the Advancement of Knowledge, Madison, Wisconsin, 1893, all this evidence formed the subject of a long discussion, in which it was accepted as valid by Prof. G. F. Wright, but impugned by Prof. T. C. Chamberlin and others. In closing the discussion, Prof. W. J. McGee submitted that, although possible, the existence of man in North America even during the last ice invasion of the glacial period "had not yet been proved beyond question. The supposed evidences of great human antiquity in that country had not yet been corroborated by more extended research, but in all save one or two cases later research had only served to show that the first interpretation was erroneous." This is the view also entertained by Mr W. H. Holmes and Prof. Otis T. Mason, two most careful observers, both of whom hold that "the finds of shaped stones referred to the gravels in place are modern shop refuse [rejects, wastrels], involved in the talus deposits in comparatively recent times." After his return from the Chicago Exhibition, M. Topinard, reviewing the whole question, expressed in *l'Anthropologie* his belief in the high antiquity of man in the New World, and alluded to Dr C. C. Abbott as "the Boucher de Perthes of America." To this Prof. O. T. Mason[1] replies that "it is quite within the limits of possibility that Boucher de Perthes may turn out to have been the Dr Abbott of France," meaning that his conclusions, since confirmed by overwhelming evidence and accepted by Evans, Flower, and even Prestwich and other extremely cautious observers, may nevertheless have to be rejected as premature. It would appear, on the contrary, that, when not merely one section, but the whole field from Fuegia (see above)

Views of Chamberlin, Holmes, Mason and others.

[1] *American Anthropologist*, Oct. 1893, p. 461.

to Alaska, is brought under survey, the existence of quaternary man in America may be as frankly accepted as it has already been in Europe.

The Calaveras skull.

At the meeting of the American Association no reference appears to have been made to the famous fossil skull reported by Prof. J. D. Whitney as found (1886) in the undisturbed auriferous gravels of Calaveras County, California, which at once raised the still discussed question of "tertiary man" in the New World. Before reaching the gravel bed where the skull was said to have been found, the shaft sunk by the miners had in downward order successively pierced a black lava sheet 40 ft. thick, gravels 3, white lava 30, gravels 5, white lava 15, gravels 25, and brown lavas 9, or a total depth of nearly 130 feet. As the lavas might have accumulated rapidly during periods of great igneous disturbance in the Sierra Nevada region, everything would depend on the age of the gold-bearing gravels, which are assigned by Whitney to late tertiary times (pliocene), and by le Conte to "the beginning of the [last?] glacial epoch." On the strength of this and other data Whitney himself concludes generally "that there is a large body of evidence, the strength of which it is impossible to deny, which seems to prove that man existed in California previous to the cessation of volcanic activity in the Sierra Nevada, to the epoch of the greatest extension of the glaciers in that region, and to the erosion of the present river cañons and valleys, at a time when the animal and vegetable creation differed entirely from what they now are, and when the topographical features of the state were extremely unlike those exhibited by the present surface[1]." The question is still *sub judice*; but should the find prove genuine, it will go some way to establish a warm interglacial period of long duration to give time for slow movements of migration between the eastern and western hemispheres before the second ice-age set in. From his studies of the Colombia formation M°Gee infers such an epoch for North America, where the relative erosion of running waters since the formation of the first (Columbia) and second deposits

[1] *Auriferous Gravels of the Sierra Nevada*, p. 288.

shows that "the interval of mild climate and high level of the land between the two epochs of cold was from three to ten times as long as the post-glacial period[1]."

General diffusion of quaternary man throughout North America.

This would also give time not merely for the appearance of palæolithic man, at a few isolated points, as above, but for his general diffusion throughout the northern Continent, as some have inferred from the special inquiries made in this direction by Mr Thomas Wilson, Curator of the Department of Prehistoric Anthropology in the Smithsonian Institution. From his memoir on the subject (Washington 1890), it appears that to a Circular (No. 36), issued in 1888, asking for information respecting primitive man and his works, 209 replies were received, reporting 6,656 palæoliths of Chellian and Solutrian (laurel-leaf) types from 23 States of the Union and 106 from Canada. Besides these, thousands exist in public and private collections, such as those of Cambridge, Mass., the New York Natural History Museum, the United States National Museum, Washington, the Valentine collection, lately presented to the City of Richmond, and the Christy, now in the British Museum.

Some of those reported to the Smithsonian Institution occurred in undisturbed deposits, such as those from Warren and Green Counties, Ohio; from Essex County, Mass.; Bonaparte, Iowa; West Granby, Connecticut (12 ft. below the surface); Lewisburgh, Pennsylvania, and elsewhere. But many are from mounds and shell-heaps of no great age, while the majority are simply "surface finds." A great controversy rages over these, which by many are not accepted in evidence, being regarded as wastrels from the workshops of neolithic peoples (the present Indians). Flakes and chippings of all kinds must be so regarded, unless their age is attested by their provenance and associations. But all rudely finished implements, say of the Chellian type, are not to be rejected merely because found on or near the surface. Often they cannot be explained as chips flaked off from the core in the process of manufacturing neoliths. They show wear and tear, having been used as the best tools palæolithic man could produce,

[1] *Meeting Amer. Ass. for the Advancement of Science*, 1887.

and they occur in some places in pockets or *caches*, as prized objects, doubtless rude in a relative sense, but not so to those who knew of nothing better. Mr Wilson, one of the first archæologists living, writes (*ib.* p. 694): "My experience with these implements in the two continents justifies me in identifying those found in America as belonging to the same stage of culture to which the Chellian implements of France and England belonged, and, consequently, enables me to call them palæolithic implements." And this must suffice for a subject about which hundreds of papers have been written, but on which it would be premature to pronounce definitely. Hence little has here been attempted beyond a fair exposition of the available facts, and of the views advocated on both sides. An impartial observer may perhaps be permitted to add that, if palæolithic man, as we are told, "is discredited in the north," he stands in high favour in the south, where his existence appears to be placed beyond reasonable doubt, at least in Brazil, Patagonia and Fuegia.

The Mound-builders not quaternary. Their culture neolithic, prehistoric and historic.

A great antiquity has been claimed for the above-mentioned mounds and the earth-works of all kinds strewn over the Mississippi basin, and abundant especially in the Ohio valley. They have been referred to the Tallegwi, an extinct civilised race, ante-dating the present Indian tribes, and driven out or exterminated by them. It is confidently asserted that between the Mound-builders and the Red Skins "no line of connection can be made out," to which it might be replied with even greater confidence that "no line of disconnection can be shown."

Mr W. K. Moorehead[1], one of the best authorities on this subject, recognises two distinct mound-building races, the old long-headed, the later round-headed intruders, besides traces of palæolithic man near Cincinnati, possibly associated with the mastodon, megatherium, mylodon, and huge extinct bears and jaguars, but not known to be connected with the mound-builders. The chief seat of the long-heads was the Muskingum valley, from Marietta upwards to East Ohio, where the mounds, differing in type from

[1] *Primitive Man in Ohio*, Boston, 1892.

those of the round-heads, have yielded pottery, articles of slate, hematite, copper bracelets and other ornaments, generally inferior to those of the round-heads. These had their chief centre in the Madisonville district, at the head of the Ohio river, where have been found superior copper, horn, flint, stone, bone and shell objects in profusion. Some 24 miles to the north-east are the famous earthworks of Fort Ancient, the largest in Ohio, nearly a mile long, with over 10 miles of artificial lines. Chillicothe, on the Scioto river, is still the centre of the most interesting round-head remains, such as the Hopewell group, the Hopeton works, the Mound City, and other sites of pre-Shawnee settlements, yielding potteries of artistic designs and elaborate workmanship, finely wrought flints, copper, and other objects. Moorehead concludes that none of the mound-building races attained more than a high state of savagery, that they were skilled in several arts, but excelled in none, that they were not even semi-civilised, much less possessors of the "lost civilisation" with which they have been credited. The best authorities[1], in fact, now regard them, not as a distinct race, but merely as the precursors or ancestors of the present aborigines. There is nothing in the mounds that the Red Skins could not have executed, and several of these structures have been in progress since the discovery. They thus connect neolithic and prehistoric with historic times, but do not help in any way to bridge over the gap between palæolithic and neolithic man. In the next chapter it will be seen that this problem of the continuity of early with later culture everywhere presents itself, and nowhere perhaps admits of a complete solution.

[1] Dr Andree (*Das Zeichnen bei den Naturvölkern*, 1887) "reasserts the old statement that there is an established difference in artistic capacity between the so-called mound-builders and the present Indians, so great that it either shows a genetic difference between them, or that the Indians had degenerated in that respect. This statement is denied by the Bureau of Ethnology" (Mallery, *op. cit.* p. 738). This may be regarded as decisive, as the Bureau in question, a branch of the Smithsonian Institution, Washington, possesses all the materials necessary to form an authoritative judgment on the point. See also *Twelfth Annual Report of Bureau of Ethnology* (1894) where the subject is treated exhaustively by Mr Cyrus Thomas.

CHAPTER VI.

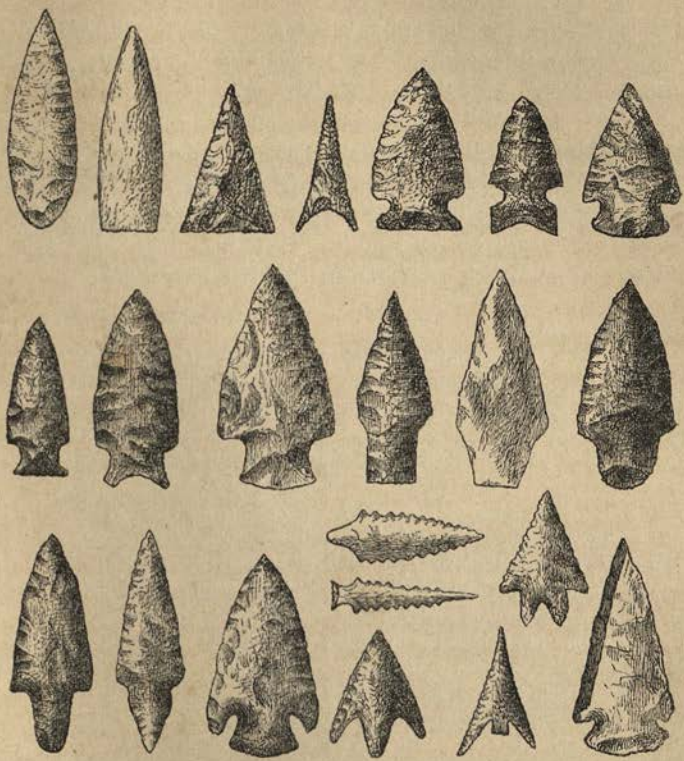
ANTIQUITY OF MAN: NEOLITHIC AND METAL AGES.

Marked difference between the Old and New Stone Ages—Comparative Table of Palæo- and Neolithic Cultures—A Break of Continuity in some regions, notably in Britain—But not everywhere—No universal hiatus possible—Continuous evolution in the south and south-east—Probable duration of neolithic times—The late palæolithic era of the West synchronous with the early neolithic era of the South-east—Great duration of neolithic times argued on general considerations—The Danish peat-bogs a time gauge—The Danish kitchen-middens—Origin and growth of aquatic stations—The Swiss Lake-Dwellings—The Irish and Scotch crannogs—Neolithic structures—Reducible to two types: The polylith or cell, and monolith or block, originating in Burial and Ancestry worship—Polylithic and monolithic nomenclature—Evolution of the Cromlech or Dolmen through the Barrow from the Cell—Popularly associated with druidical rites—The Sessi and Stazzone of Malta and Corsica—The Nuraghi of Sardinia—The Talayots of the Balearic Islands—The Russian Kurgans—Silbury Hill—The Cell becomes a Family Vault with later developments—The Menhir, its origin and wide diffusion—Its development in linear and circular direction—The Alignments and Cycloliths (Stone Circles)—Their origin and purpose explained—Erdeven; Stonehenge; New Grange; Menec, Carnac district—The Irish Round Towers—Geographical Distribution of the Megaliths—Chief Centres: Bahrein Islands; Moab; Mauritania; Gaul, Britain, Scandinavia—Bearing on the question of early migrations—Europe re-settled in Neolithic times from two quarters—Routes indicated by the presence or absence of Megalithic Structures—These wrongly accredited to the Kelts who followed the non-megalithic route—Astronomic and religious ideas attributed to the megalith-builders—Prehistoric monuments in the New World—General Survey—Tiahuanaco, culminating glory of American Megalithic architecture—Tiahuanaco Culture an independent local development.

Marked difference between the Old and New Stone Ages.

THANKS to the break of continuity which certainly occurs in some places between the old and the new stone ages, there is little difficulty in defining the more salient features by which these two epochs are distinguished. Later, the various grades of human culture often merge so imperceptibly one in the other, or present such a tangle of survivals and overlappings, that it becomes hard at times to say where one begins or the other ends. Thus the copper age, which must have preceded the

bronze, seems, so to say, crowded out almost everywhere in the Old World, so that the transition is direct from the neolithic to



NEOLITHIC ARROWHEADS.
(*From various localities in the United States.*)

the bronze era. Even the bronze seems in some districts fused in the iron, as in Belgium, where M. Ch. J. Comhaire is unable to determine "the existence of a bronze age in the strict sense, but only of a first iron age, that revealed by the Hallstadt necropolis type[1]."

[1] *Bull. de la Soc. d'Anthrop. de Bruxelles*, 1894, p. 18. So at the present time we find railways preceding roadways in some newly-settled regions (Argentina, the Far West &c.).

But even where they obviously come into close contact (Liguria, Gaul) the men of the palæolithic age always present the sharpest contrast to their neolithic successors. As will be seen in the next chapter, the physical types are absolutely distinct, except where intermediate forms already point at interminglings. All the elements of their respective cultures also differ so profoundly, as almost to suggest some violent dislocation or sudden cataclysm, such as those of the early geologists, rather than an orderly sequence in accordance with the accepted principles of organic evolution. The chief differences between the two ages may be conveniently tabulated as under:—

Comparative Table of Palæo- and Neolithic Cultures.

PALÆOLITHIC CULTURE.	NEOLITHIC CULTURE.
Climate at first warm (inter-glacial), then cold (last ice-age) in the present temperate zone of the Northern hemisphere and everywhere in the Alpine regions.	*Climate* everywhere much as at present, though at first (last post-glacial period) perhaps cooler. In general ice disappears with the appearance of neolithic man in the temperate zone.
Fauna: large pachyderms, feline and ursine species, hyæna, reindeer, horse, elk, glutton, chamois, goat, all wild: some perish with the increasing cold, some migrate south, some survive by adaptation to the changed environment and either withdraw northwards with the retreating ice-sheet or take refuge in the Alpine regions; no domestic animals.	*Fauna:* mainly as at present, a few pachyderms survive here and there (mammoth in Siberia); chief wild animals wolf, bear, lion, aurochs, beaver, fox, deer; domestic animals everywhere abundant—horse, ox, dog, sheep, goat, pig in temperate zone, camel in Arabia and Central Asia, llama in S. America.
Human types mainly dolichocephalous, but brachycephalous also in some places (South America?).	*Human types* at first mainly brachycephalous in Europe, later mixed and diversified as at present everywhere.
Fire, at first known only, later partly under control—could be preserved when kindled by natural means[1].	*Fire* under more complete control—could be artificially kindled and preserved[1].
Food[2], at first mainly vegetable, then animal also, mostly perhaps eaten raw; obtained by hunting and fishing only.	*Food*[2], vegetable and animal, the latter mostly cooked; obtained by hunting, fishing, stock-breeding and tillage.

[1] "Il ne faut pas confondre ces trois choses distinctes: la connaissance du feu, l'usage du feu, la production du feu" (Broca).

[2] It is commonly but wrongly supposed that in the wild state the higher

PALÆOLITHIC CULTURE.	NEOLITHIC CULTURE.
Cultivated plants, none.	*Cultivated plants*, numerous, cereals, vegetables, fruits.
Industries limited to the making of chipped stone implements of Chellian, Solutrian and other types, never ground or polished; apparently no pottery, but later artistic sentiment developed.	*Industries* extended to the making of polished stone implements of diverse types, spinning, weaving, mining, pottery, but little artistic sentiment at first.
Monuments, none in the strict sense; no houses, graves, or burial.	*Monuments*, monolithic, megalithic etc. very numerous; houses, barrows, graves (burial).
Speech, at first perhaps inorganic, later involved.	*Speech* perhaps everywhere involved at first, later organic.
Religious ideas, none (?).	*Religious ideas* well developed.
Social Groups, the family, later the clan.	*Social groups*, the family, clan and tribe.

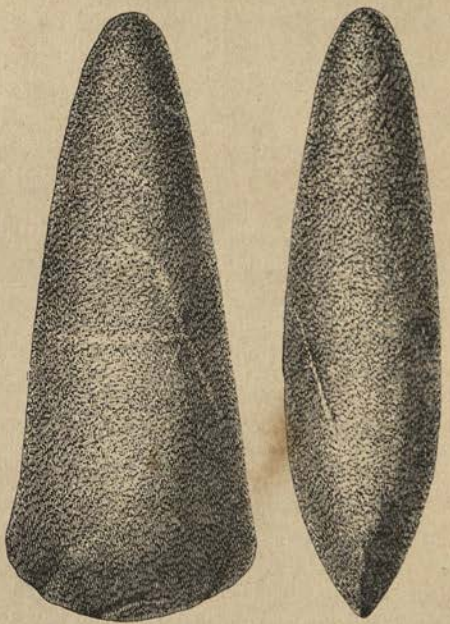
Some of these details, such as the comparatively late introduction of the art of kindling fire[1], the true starting point in the evolution of civilized man, may perhaps be open to doubt. But the table as a whole presents a sufficiently accurate picture of the two eras, which are here seen to offer the sharpest contrasts

A break of continuity in some regions, notably in Britain.

apes are exclusively herbivorous. They are certainly also insectivorous and carnivorous, eating vermin, eggs, small rodents and birds greedily. "A l'égard des jeunes oiseaux, le gorille et le chimpanzé font preuve d'une telle voracité qu'ils avalent leur proie sans la déplumer" (L. F. de Pauw, *Bull. d. l. Soc. d'Anthrop. de Bruxelles*, 1894, p. 140). Hence, when the precursor was driven by the increasing cold of the first ice-age from arboreal habits to a nomad life on the plains he readily acquired omnivorous tastes. It follows that man, in the eolithic stage mainly frugivorous, adapted himself later to a general diet; all physiologists admit that food is largely a question of adjustment to the environment, while itself reacting most powerfully on the dentition and gnathism.

[1] Yet even this may be inferred from the vague reminiscences of the discovery, which still survived into historic times in the form of the Promethean myth. The very names of the two pieces of wood used in one primitive process of producing fire are preserved both in Greek and Latin: στορεύς or ἐσχάρα = *tabula*, the stand or under piece; τρύπανον = *terebra* = the borer twirled between the hands. This "fire-drill," itself an improvement on the still more primitive method of the "stick and groove" (Tylor), was in use in connection with mystic rites long after it had been superseded for practical purposes by the flint and steel, the burning-glass, and other more efficient processes. It thus

at all points. Hence it is not surprising that a general impression should prevail, not of mere sequence, but of an abrupt transition without any intermediate stages between the Old and New Stone Ages. In some localities, notably in Britain, such may have been the case, and Evans aptly remarks that "there appears in this country, at all events, to be a complete gap between the river-drift and surface-stone [neolithic] periods, so



NEOLITHIC CELT OF GREENSTONE.
(*From Bridlington, Yorks.*)

far as any intermediate forms of implements are concerned; here at least the race of men who fabricated the latest of the palæo-

became associated with so many superstitious practices, especially in the production of the so-called *nodfyr* or *niedfyr* ("needfire") in Germanic lands, that the use of kindling fire by friction (*De igne fricato de ligno*) was prohibited by the Council of Leptines (Hainaut) in 725. Such survivals point to relatively recent inventions in neolithic or even prehistoric times.

lithic implements may have, and in all probability had, disappeared at an epoch remote from that when the country was again occupied by those who not only chipped but polished their flint tools, and who were moreover associated with a mammalian fauna far nearer resembling that of the present day than that of the quaternary times[1]."

It has been seen (p. 73) that the same inference is drawn by Prof. Boyd Dawkins, and although questioned by others, this

NEOLITHIC ARROW-HEAD.

(*From the Yorkshire Wolds.*)

certainly seems the most probable view, so far as regards Britain, where the conditions were peculiar. The few scattered palæolithic hunters could scarcely have lived through the last ice-age in a contracted region at one time reduced by subsidence to a mere cluster of islets, and for long intervals entirely severed from the mainland. But elsewhere the relations were very different, continuous land at all times affording a retreat from the advancing ice-sheet, or from the glaciers descending from Alpine heights. The southern and south-eastern lands (Mediterranean seaboard, Arabia, most of Irania and India) not only lay beyond the farthest limits of the

But not everywhere.

[1] *Ancient Stone Implements of Great Britain*, p. 612. So great is the authority of Sir John Evans on matters of this sort, that his view must be accepted until disproved by some direct evidence to the contrary, which is not at present forthcoming.

ice-sheet, but were even favourably affected by glaciation, which transformed the temperate to an arctic, and the tropical to a temperate zone. Here therefore human culture need never have known any break, and if a continuous sequence between old and new has not yet been established in these regions, it is only

NEOLITHIC STEMMED ARROW-HEAD.
(*From the Yorkshire Wolds.*)

because they have not yet been everywhere so diligently explored as have those north of the Alps. It was seen (p. 73) that even in Liguria (Mentone Caves) interminglings seem to have taken place[1]; similar contact may well be suspected in

[1] These, however, are somewhat differently interpreted by Mr A. J. Evans, who from the associated ornaments concludes that the three skeletons of the

France, Belgium, Hungary, and may be assumed for the southern and south-eastern lands. In any case no absolute or universal hiatus can be imagined without the assumption of one of Cuvier's fresh creations, which are in themselves a violent and gratuitous assumption, and which in science would merely be another name for limited knowledge. In this connection it is specially noteworthy that neolithic man is unanimously allowed to have reached Europe from the east or south[1], most probably from both quarters, and if this be so, it follows that those regions were the seat of a relatively advanced civilization at the close of the last ice-age in the west. This is one of those reasonable inferences which, without admitting of direct proof, must yet be accepted in order to avoid reckless and incredible assumptions.

No universal hiatus possible.

Continuous evolution in the southern and south-eastern lands.

For the whole period, from the close of the last ice-age to the

Barma Grande Cave, Balzi Rossi Cliffs, are early neolithic although interred in unstratified palæolithic débris. Hence "a race representing the essential features of the later population of the polished Stone Age was already settled on the Ligurian shores at a time when many of the civilized arts, which have hitherto been considered the original possession of neolithic man on his first appearance in Europe, were unknown. It will no longer be allowable to say that these supposed immigrants from Asia brought with them at their first coming certain domestic animals, and had already attained a knowledge of the potter's art and of the polishing of stone weapons. And, if this is the case, something at least will have been done towards bridging the gap between the earlier and the later Stone Age in Europe" (*Jour. Anthrop. Inst.*, 1893, p. 301).

[1] "Tout le monde reconnaît que celles-ci [les populations néolithiques] sont venues de loin et ont apporté avec elles des industries jusque-là inconnues sur les bords de la Vézère ou de la Lesse, et un état social nouveau" (De Quatrefages, I. 117). Thus even allowing interminglings and contacts at various points, an arrest of progress would have still to be admitted for the West. Assuming the survival of primitive man into the New Stone Age, it is obvious that in any case his culture was interrupted and prevented from continuing its natural evolution by the irruption of neolithic man into Europe. One hesitates to speak positively on such a difficult question; but it may be said that all the known facts point perhaps at extinction in Britain, and at absorption on the mainland. Indeed Mr J. Allen Brown fairly establishes continuity in West Europe (*Jour. Anthrop. Inst.* 1893, pp. 66—95).

Probable duration of the neolithic and prehistoric ages.

present day, a term of over 100,000 years was postulated at p. 55. It was also seen that of this term fully 10,000 years are now required for the strictly historic period in Egypt and Mesopotamia. At a moderate calculation at least double that number of years may be assigned to the prehistoric metal ages inter-

NEOLITHIC JAVELIN OR ARROW-HEAD.

(*Iwerne Minster, Dorset.*)

vening between neolithic and historic times. This would leave about 70,000 years for the neolithic alone, and a nearer consideration of the data above tabulated may help to show that this is no extravagant estimate.

From the necessary hypothesis of a neolithic culture syn-

chronous in the south and south-east with the later stages of the palæolithic era in West and Central Europe, it follows that the neolithic era itself, when viewed as a whole and not merely in its western developments, must be dated back to palæolithic times. In other words, while primitive man was still struggling with the mammoth, and fabricating chipped implements in Dordogne and Britain, a relatively advanced degree of culture had already been developed, say, in the Nile and the Euphrates valleys. Consequently the duration of this advanced culture is to be measured, not by the first appearance of its representatives in the west, but by its first beginnings in the east, which may probably have coincided with the Madelenian epoch in France.

The late palæolithic era of the west synchronous with the early neolithic era in the south-east.

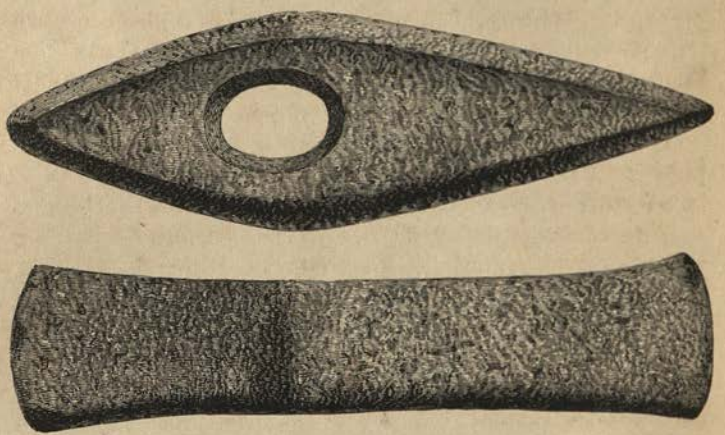
How far removed these beginnings are from even the dawn of history, may be dimly conjectured by such general considerations as the following. Not even the faintest memory, such as might have been orally transmitted in popular myths and folklore, has been recorded of the origin in time or place of any one of the arts characteristic of the New Stone Age. All de Candolle's ingenuity has failed to discover, otherwise than by inference, the true home of the cereals and other cultivated plants already known to neolithic man. No one can even surmise where or when weaving, pottery making, and the other early industries had their rise. Who can say when man first began to polish his stone implements, and fashion them to convenient forms, some of which were afterwards perpetuated in bronze and iron with little change down to our days? The foundations of the megalithic monuments, which yet girdle the globe, are wrapped in impenetrable mystery. Stonehenge and other similar works in Britain and Brittany must be of comparatively recent date, for their builders had already traversed more than half the eastern hemisphere before reaching the Atlantic seaboard. Yet they are old enough to have been entirely forgotten by later generations, despite the vast labour expended in their erection. *Ratio in obscuro*, says Tacitus (*Hist.* II. 3), in reference to a rude stone pillar representing the Paphian goddess, and the remark may be

Great duration of neolithic times argued on general considerations.

extended to all the works with which neolithic man has covered a great part of both hemispheres.

The Danish peat-bogs a time-gauge.

Some of these remains, however, afford a somewhat more definite idea of the time occupied in their construction. Probably the best time-gauge may be had from a study of the Danish peat-beds, rendered famous by the classical labours of Worsaae, Steenstrup



NEOLITHIC PERFORATED AXE.
(*Hunmanby, Yorks.*)

and other distinguished archæologists. We have already seen that palæolithic man never ranged so far north as Scandinavia. Hence the prehistoric remains now found in Denmark go no farther back than the polished stone period. Yet so remote is that period that since the first arrival of man the climate of the country, as indicated by its flora, has undergone not one but several successive changes. At the dawn of history the beech was, as it still is, the characteristic forest tree, and as it could not have sprung suddenly into existence, its general diffusion may confidently be dated back to at least 2500 years ago. But the peat-bogs, from the lowest depths of which objects of human industry have been recovered, disclose three successive layers of decayed vegetable matter, showing that before the *beech*, the land

was covered with the *pedunculated oak*, which had displaced the *sessile oak*, successor to the *Scotch fir* characteristic of a still earlier epoch. Allowing from 2000 to 3000 years to each of these slow-growing and exceedingly tenacious arborescent species, we see that man must have already been in occupation of the land at the very least some 10,000 years ago. But to reach Denmark he had to traverse the whole of the European mainland by whatever route was followed, and such migratory movements, always slow, must have taken many successive generations in times when most of the land was either forest-clad, or covered with vast swampy tracts. Even so recently as the seventh century the Gallo-Germanic borderland is still described as a *regio vastis et fere continuis paludibus obsita*[1]. In the Danish peat-bogs the change of flora roughly coincides with a change of culture, the polished neoliths of the fir and early sessile oak being replaced by bronze tools which last throughout the upper sessile oak and the whole of the pedunculated oak periods, when iron comes in apparently with the beech forests, or somewhat later. With the neoliths are associated the remains of elk and reindeer, but not of the mammoth, which appears to have never ranged into Denmark, although in Asia extending far beyond the corresponding parallels of latitude.

The Danish Kitchen Middens.

In Denmark also were first studied and named the *Kjökken-möddinger*, or "Kitchen-middens," which we have seen scattered over both hemispheres, but the true character of which was determined by Steenstrup, Worsaae and Forchhammer. By Lubbock they are referred to the early part of the Neolithic age, "when the art of polishing flint instruments was known, but before it had reached its greatest development[2]." Surprise has often been expressed that Denmark should have proved such an attraction to man at this period. But the explanation lies in the physical and biological conditions of a region washed by the warm waters of the Gulf Stream, and yielding an abundance of easily captured food. In the middens

[1] "A vast region occupied by almost continuous morasses;" A. G. B. Schayes, *Les Pays-Bas avant et durant la domination romaine*, 1838, II. p. 67, quoting from *Audœnus*, *Life of St Eloi*.

[2] *Prehistoric Times*, ch. vii.

are found the shells of the oyster, cockle, mussel and periwinkle, as well as the bones of the herring, eel, capercailzie, wild swan, duck, great auk (now extinct), stag, roe, wild boar, urus, beaver &c., besides the dog—probably already trained to the hunt. Here consequently were found some of the earliest permanent settlements, and here was even developed a distinctly local culture, as shown by the peculiar and often highly artistic forms of the later stone and bronze implements. This early settlement of Scandinavia affords perhaps a clue to the preponderating part played by the Norsemen in the course of events in later times.

Long occupation is indicated both by the great number and by the magnitude of the middens, which occur all round the shores of Jutland and neighbouring islands, and some of which exceed 1000 feet in length, with a breadth of from 100 to 200 and a height of 10 feet. A single mound thus contains many tens of thousands of cubic yards of refuse. They were certainly of earlier formation than the middle peat-beds, for they contain no bronze implements, and only a little pottery of coarse type. Since their formation the very coast-line has been greatly modified, and the Baltic Sea has become so fresh that the oyster, which formerly abounded in the archipelago, can no longer live in the surrounding waters.

Origin and growth of aquatic stations.

To the Danish peat-bogs correspond in point of time the lake-dwellings of Switzerland, where analogous physical conditions could not fail to attract some of the first neolithic hordes, probably penetrating up the Danube valley westwards from Caucasia or Asia Minor. Lacustrine or marine settlements form an interesting feature in the evolution of human progress, their development being intimately dependent on the local conditions at certain stages of culture. Communities seated by the shores of lakes or shallow inland seas possess obvious advantages over tribes confined to the woodlands or the plains. They draw their supplies both from land and water, and to their other resources are added navigation followed by barter and piracy. But on the other hand the wealth thus rapidly accumulated exposes them to the attacks of predatory hordes, to guard against which they take refuge in their boats. They are thus gradually transformed to a

floating population, which soon learns to adapt itself to the new environment by erecting dwellings on platforms resting on piles driven into the mud or sands of a shelving beach. Then, when peaceful days and orderly government take the place of lawless habits, a return is made to *terra firma*, and the abandoned lacustrine dwellings soon disappear; but the sites remain the safe depositories of the multifarious objects of human industry which have accumulated beneath the shallow waters during their occupation.

Such is the history, either completed or still in progress, of the numerous floating habitations which are found in every part of the world from the New Guinea coastlands and the estuaries of the Borneo rivers to Helvetia and the British Isles, and beyond the Atlantic to the aquatic settlements of the Maracaibo Sea, to which the surrounding region owes its present name of Venezuela, "Little Venice." Such especially is the history of the Swiss lake-dwellings, the recent exploration of which has shown them to be one of the richest storehouses of neolithic and prehistoric industries. Antiquaries have already explored over two hundred of such stations, some of which were occupied again and again, like Hissarlik (Troy), Lachish[1], and those other eastern cities, where the vestiges of several distinct civilizations are found superimposed one on the other. At Robenhausen, south side of Lake Pfäffikon, three such prehistoric occupations have been disclosed, each destroyed before the next began, as shown by the three sets of piles (100,000 altogether), each projecting from 3 to 5 feet higher than the one below. So also at Morges, on the north side of Lake Geneva, there were three different stations, here, however, not superimposed but standing in close proximity within a space of about a third of a mile. Nevertheless they were not inhabited simultaneously, but successively, as shown by their relics, all stone in the earliest, stone and rude bronze hatchets in the next, bronze alone and very fine

The Swiss Lake Dwellings.

Extend into the Bronze Age.

[1] The site of this place "was found by Mr F. J. Bliss to contain the accumulated remains of as many as eleven cities, which here succeeded each other from about 2000 to 400 or 300 B.C." (A. H. Keane, *Asia*, Stanford Series, 1895, Vol. I. Ch. iii.).

bronze in the last, the great prehistoric city of Morges. Even the present Morges appears to be some 1200 or 1500 years old; yet it never had any record or memory of its predecessor till its existence was revealed in 1854 by the subsidence of the lake, due to an exceptionally long drought.

Although the study of the Swiss lake-dwellings dates from the year 1854, it should be mentioned that the Irish *crannogs* had already engaged the attention of Sir W. R. Wilde in 1839; in his Catalogue of the Museum of the Royal Irish Academy (1857) as many as forty-six are recorded as known at that date, and many more have since been brought to light. But the crannogs "were not, strictly speaking, artificial islands, but *cluans*, small islets or shallows of clay or marl in those lakes which are probably dry in summer-time, but submerged in winter" (*ib.*). Although true pile dwellings were not unknown, as at Ardmore in the South, most of the houses were of the so-called "fascine" type, resting not on stakes and platforms but on layers of sticks raised above the surface. Hence the connection with the continental structures is not obvious, although all alike are referred by Dr Robert Munro[1] to the Kelts, the Swiss being also regarded by Keller as of Keltic origin. Of the known Irish sites (about 220) over half (124) occur in Ulster, and nearly all those discovered in Scotland are centred in the districts nearest to Ulster (Ayrshire and Wigtonshire): they are also of similar fascine type, so that here a connection may be established. The Scotch crannogs were probably constructed by the first immigrants from the north of Ireland before they had secured a firm footing in the country to which they gave its present name of *Scotland*.

Are far more numerous than is commonly supposed.

It would seem that the settlements on the Swiss lakes were far more numerous than those officially recorded. Mr Thomas Wilson tells us that he knows many "not noted, and where noted as one they really include several." He adds: "At Chevroux, Lake Neuchatel, I found twelve stations, of which seven belonged to the neolithic and five to the bronze age, yet they are noted as only one of each. An idea of the extent of these stations may be obtained from the fact that they contain from 10,000 to 100,000 piles....

[1] *Jour. Anthrop. Inst.* 1886, p. 453.

At Wallishofen, Lake Zurich, there have been found no less than 2000 bronze hair-pins, some long with large and beautiful heads, which when polished to their original gold colour, must have given a gorgeous appearance to the female head-dress of that age[1]."

Bronze, an alloy of copper and tin in the proportion of about 9 to 1, appears never to have been made in Europe before the historic age; but it was in general use amongst the Egyptians and Babylonians many thousand years ago. It certainly was introduced from the East at a very remote period into Europe, where there were numerous prehistoric foundries for recasting worn or broken implements. At one of these, near Bologna, some 14,000 such fractured pieces were found ready to be worked up, when this ancient smithery was suddenly closed for ever, by events which have passed out of the memory of man as completely as if they had taken place in Croll's first ice-age. Bronze was unknown in the New World, except in Chimu, where the art of making it seems to have been discovered independently. It will be seen presently that this fact has a direct bearing on the question of the relations between the two hemispheres in remote prehistoric times.

For the study of neolithic man, far more important than peat-bogs, middens or lake-dwellings, are the multitudinous megalithic structures which he has strewn broadcast over the face of the globe. Despite much diversity of form and size, all these structures seem reducible to two fundamental types, the *polylith* or *cell*, and the *monolith* or *block*, both primarily associated with burial and ancestry-worship, later also with religious rites in the stricter sense. As in biology all proceeds from the cell, so in this primitive architecture from the corresponding nucleus are evolved the various organic structures, which seem to culminate in the Egyptian temple (cell), with its obelisks, avenues of sphinxes, and other monolithic approaches (block). Clearness and the exigencies of space will be consulted by here grouping in two divisions, according to their affinities to one or other of the two primary

Neolithic structures reducible to two types.

Polylithic and Monolithic nomenclature.

[1] *Prehistoric Anthropology*, p. 629.

types, the numerous terms in current use in connection with the neolithic monuments: —

Polylithic Type (the cell).	Monolithic Type (the block).
Cromlechs, Dolmens or Quoits.	*Menhirs.*
Cistvaens.	*Alignments or Avenues.*
Tumuli or Barrows.	*Cycloliths or Stone Circles.*
Cairns or Galgals.	*Stantare.*
Kurgans.	*Round Towers.*
Nuraghi.	*Gateways.*
Talayots.	*Trilithons.*
Sessi or Stazzone.	

Evolution of the Cromlech and Dolmen through the Barrow or Tumulus from the cell.

Here the cell, taken as the starting-point, is essentially a sepulchral chamber or tomb, composed primarily of four, five, six or more megaliths, three or four upright or on edge, supporting a horizontal slab, which covers the whole space enclosed, and to which corresponds another horizontal slab, resting on the ground as a floor, but not necessarily present. Here are deposited the remains of the dead, or else urns containing their ashes, with or without parting gifts. Then the polylith thus constructed is covered with a heap of stones or earth, and is called a *cairn*, *tumulus*, *galgal*, *mound* or *barrow*[1]. But in course of time this superstructure may disappear from various causes, leaving exposed the original cell, which is then called a *cromlech* or *dolmen*[2], of which the *cistvaen* is a mere variety[3], and

[1] *Cairn* (from Irish and Welsh *carn*, rock), a pile or heap of stones, thrown together for any commemorative purpose, hence not necessarily containing a grave; *barrow*, from Anglo-Saxon *beorh*, a shelter, a burial-place (*beorgan*, to shelter), always covers a grave; *galgal*, a rough tumulus without a passage for secondary burial.

[2] *Cromlech* (Welsh *crom*, bending, *llech*, a slab), and *dolmen* (Kelt. table-stone), are practically synonymous terms, indicating any group of uprights supporting a flat capstone or table, this table being the original roof of the sepulchral chamber. These terms however are not always used with strict accuracy, and cromlech especially is often applied to groups of uprights which, having no capstone, should properly be regarded as groups of monoliths or menhirs, such as are seen in India, Algeria, Brittany and other regions.

[3] Welsh *Cistfaen*, a chest or box-shaped tomb in a barrow, applied especially

the *quoit* a local designation. Such, according to the best authorities, would appear to be the genesis of all true cromlechs,

TREVETHY STONES.

many of which have been so long exposed that their *raison d'être* has been forgotten. In many parts of Britain, Guernsey and elsewhere, they are called "Druids' Altars," and are popularly associated with Druidical rites. They are even attributed by some archæologists to the "Kelts," although it would seem more probable that the Kelts on their arrival found them ready to hand and utilised them for religious purposes. The Kelts certainly did not reach Gaul and Britain by the southern route from Syria, through Mauritania and Iberia. Hence to them cannot be referred the

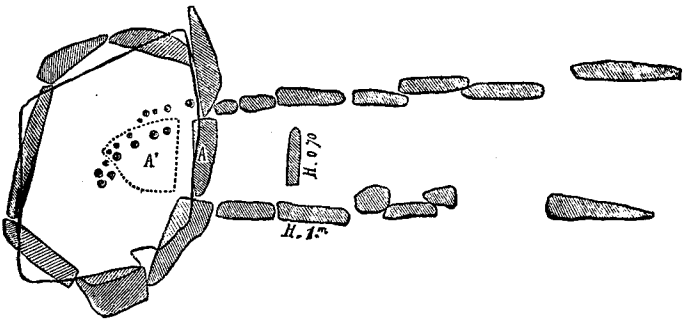
Popularly associated with Druidical rites.

to those receptacles in which were deposited the pots or urns containing the cremated remains of the dead. Such cists are still in use amongst the Khasi hillmen of Assam, and many appear never to have been covered by a mound.

The Sessi and Stazzone of Malta and Corsica.

numerous structures of identical form found in those regions, as well as the *Sessi* and *Stazzone*, which are merely local names for the dolmens of Pantellaria, Malta and Corsica. There are no true dolmens in Sardinia, where they are replaced by the *Nuraghi*, abodes not of the dead but of the living, though possibly modelled on long vanished cromlech prototypes[1]. To the same category belong the so-called *Talayots*, or "watch-towers" of the Balearic Islands, which date also from

The Nuraghi and Talayots.



GROUND-PLAN OF PALO-DE-VINHA DOLMEN, NEAR EVORA.

prehistoric times, and which are generally supposed to have been erected by the same race that built the Sardinian Nuraghi.

To the British barrows, of which there are two types, the older long and the later round-shaped, correspond the *Kurgans* of the Russian steppe lands, and the already described mounds of North America. Both the Kurgans and the mounds reach far into the historic period, and

The Russian Kurgans.

[1] The resemblance of primitive dwellings to the dolmens has often been noticed; but it is reversing the order of sequence to suggest with Miss A. Buckland "that the tombs were reproductions of the houses of the living" (*Jour. Anthrop. Inst.* IX. p. 132). It was surely the other way, for early man, when advanced enough to be influenced by religious sentiment, was intensely superstitious, and in his dread especially of his departed ancestry expended far more labour on the abodes of the dead than of the living. Innumerable Old Egyptian tombs, but not a single Old Egyptian house or even palace, has lasted to our time.

the Kurgans were still used as burial-places in the 10th and 11th centuries of the new era.

In the south-east of Spain, where the gradual transition is so clearly seen from the earliest neolithic to the bronze and even "silver" epochs, there occurs a type of grave which probably preceded the cell or cist itself, just as inhumation certainly preceded cremation, which came in with the development of the potter's art. "The mode of burial at this [early neolithic] period was by inhumation of several bodies in polygonal spaces enclosed by stones set in an upright position; the bodies were interred at a slight depth, with knives, arrowheads of flint, and ornaments formed of steatite, beads, shells, &c.[1]." Here the superstructure seems to be entirely dispensed with, the bodies (as many as fifteen have been found together) being interred in the ground, as at present, and the sites simply marked by enclosures of upright stones; at least there is nothing to show that the whole was ever surmounted by a tumulus of any kind. Later, when cremation was practised, the baked clay urns containing the ashes "were placed in sepulchral chambers formed of slabs" (*ib.* p. 126). Here we seem to have the natural evolution of the cell or cist, whence the dolmen, as above.

It thus appears that all graves of the cell type were in principle underground, or at least covered, structures[2]. But the superstructure was often a laborious and costly affair, such as that of Silbury Hill, near Marlborough, Wiltshire, one of the finest in the world, standing on about five acres and rising in vertical height 170 and along the slope 316 feet. It is obvious that Silbury Hills could not be raised over the grave of every great chief, or smaller mounds over those of smaller people. Hence the same mound had to do duty for many generations, and the original cell expanded into the

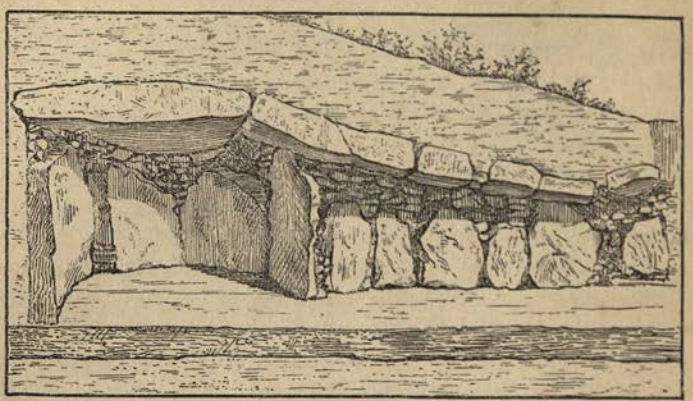
Silbury Hill.

The cell becomes a family vault with later developments.

[1] Henri and Louis Siret, *Jour. Anthrop. Inst.* 1889, p. 124.

[2] Part of the mound is still to be seen, which originally covered the dolmen near Corancez, Chartres district, although the huge capstone is no less than 15 × 10½ feet (A. L. Lewis, *Jour. Anthrop. Inst.* 1890, p. 68). In the same district "there are remains of the tumulus which, no doubt, completely covered it" [the dolmen known as "le Berceau"] (*ib.* p. 70). At another place (Bonne-

"family vault," developing a more or less complex system of lateral chambers, sometimes 30 × 16 and 8 ft. high, with superimposed slabs of corresponding size, some weighing 10, 20 and even 40 tons. But easy access, with due regard to security from the attacks of prehistoric ghouls, attracted by the rich offerings deposited with the dead, was a primary necessity.



DOLMEN-TUMULUS OF KERCADO, MORBIHAN.

We know how this was effected by the pyramid-builders, the very form of whose tombs shows that they were merely "petrified mounds." So also the neolithic cell had its intricate approaches, galleries or corridors 3 or 4 feet wide and sometimes 40 or 50 long, constructed like the chambers themselves, and blocked by cross slabs either at the entrance or the end, or even at both entrance and end, of the passage.

But the dolmen and its gallery being still entirely covered by the mound, and not always disposed in the same direction, some opening to the north, some to the south, west, east and especially south-east, it became desirable or convenient to indicate the entrance by some visible landmark. This was effected by setting

val) both dolmen and encircling menhirs would appear to have been originally covered by the barrow, just as "a row of upright stones has been found buried in a tumulus in Brittany" (*ib.* p. 71). Chambered tumuli of the same type occur even as far east as Japan (W. Gowland, *ib.* p. 64).

up one or more monoliths (the block), generally perhaps two, like the two obelisks in front of so many Egyptian temples. Such was the *menhir*, or "tall stone" (Kelt. *maen* = stone, *hir* = high), apparent germ of all the monuments reduced to our second or monolithic type. Thus we see that as the dolmen was originally always concealed from view, the menhir on the contrary always stood on the surface,

The Menhir, its origin and wide diffusion,

DOL MENHIR.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC

sometimes resting on the ground, sometimes sunk a few feet deep, sometimes with prepared foundation, according to the size and shape of the block. Although no tool marks are now to be detected, all appear to have been quarried, the markings being blurred or effaced by long weathering. Some, especially in Brittany, are of enormous size, those of Penmarck, Cadiou, Mount

Dol, Plouarzel, Plesidy and Lochmariaquer, being respectively 25, 28, 31, 36½, 37 and 67½ feet high, and the last mentioned, now fallen and broken, weighs no less than 347 tons. Of menhirs proper, that is, completely isolated blocks, as many as 739 have been enumerated in Brittany alone. They occur also in groups, mostly rough-hewn or unhewn, but sometimes inscribed with oghams, runes, and other markings, in North and West Europe, North Africa, and as far east as the Deccan, the Khasi and Naga Hills. Here they are still erected either as votive offerings or as monuments to the dead, in association with, or perhaps more frequently detached from, the cists or tombs containing the ashes of the dead, with which all would seem to have been originally connected. "We may trace back the history of the menhirs from historic Christian times to non-historic regions, when these rude stone pillars...were gradually superseding the earthen tumuli as a record of the dead[1]." In Khasiland, where both vertical and horizontal blocks are combined in a single monument, they appear to be in a state of transition, for Mr C. B. Clarke tells us that "they are not necessarily placed where the family ashes are kept in cists, or near such cists; but they are usually at no great distance from the village where the family dwells[2]."

its development in linear and circular direction.

But before this divorce took place between menhir and chambered tumulus, the combined system acquired a surprising development both in a linear and circular direction. When disposed in single, parallel or converging rows, the monoliths take the name of *alignments*, and these may be regarded as linear extensions of the blocks originally set up at the entrance to the covered passages. But similar blocks are also found disposed in circular form round the barrows, and they are then known as *cycloliths* or stone circles. At present many of the alignments seem to lead nowhere, and have consequently remained a puzzle to archæologists. Similarly many of the cycloliths seem now to enclose

The Alignments and Cycloliths or stone-circles.

[1] Fergusson, *Rude Stone Monuments*, p. 60.

[2] *The Stone Monuments of the Khasi Hills*, *Jour. Anthrop. Inst.*, 1873, p. 486.

empty space, and have accordingly given rise to much discussion. Typical examples are the alignment of Erdeven, Brittany, where 1120 menhirs are disposed in 13 converging lines, 1 mile 536 yards long, and the cyclolith of Stonehenge, which is too well known to need description. But when row, circle and chambered barrow are studied where all are still found in more or less complete structural combination, all seems sufficiently plain. Such is the huge domed tumulus of New Grange, five miles from Drogheda, the largest in Ireland, 70 feet high, approached by a gallery 63 feet long formed of about 22 blocks on either side, the whole enclosed originally by a perfect cyclolith, of which about a dozen menhirs are still *in situ*. "The stupendous mound, the circle of enormous blocks of stone surrounding it at equal distances, the great masses forming the entrance, fill the spectator with wonder at the labour necessary to rear so vast a monument. Creeping in on hands and knees, we find huge upright blocks from 2 to 7 feet in height and from 2 to 3 feet 6 inches in breadth, lining the entrance passage on both sides, and gradually approaching each other [compare the converging rows at Erdeven], until at one point farther progress is a little difficult. This point past, the passage widens and rises, so that it is soon possible to stand, and you find yourself in a chamber nearly circular, with three side compartments, two of them containing large stone basins or dishes, on or under which I believe the bodies of the entombed were placed[1]." Remove the tumulus and New Grange becomes, *mutatis mutandis*, a Stonehenge on a reduced scale; supply the tumulus, and Stonehenge becomes a New Grange on a colossal scale. New Grange may thus be likened to those Pacific islets, which are encircled by fringing coral reefs; Stonehenge to those Pacific atolls, in which the islets have disappeared by subsidence, leaving only a reef-encircled lagoon. The "lagoons," that is, the apparently empty spaces, have, when searched, yielded human remains, showing their sepulchral character even ages after the disappearance of the menhir-encircled barrows.

Erdeven.

Stonehenge.

New Grange.

[1] Miss A. Buckland, *Jour. Anthrop. Inst.* IX. p. 151.

THE CARNAC ALIGNMENTS.

So with the alignments, some of which even still terminate in cromlechs. Such are those of Menec, near Carnac, Brittany, a system of 835 menhirs disposed in 11 parallel lines 1293 yards long with a cromlech of 62 menhirs; and Kerlescant, in the same district, with 13 rows 1000 feet long (258 menhirs in all), and a cromlech square of 39 menhirs. There are altogether nearly 50 alignments in France, and as many as 3500 dolmens of diverse forms, for the most part confined to the southern, central and western districts.

Menec, Carnac district.

Whether the Irish Round Towers are a transformation of the menhir analogous to the Egyptian obelisk, or a development analogous to that of the Muhammadan minaret, as suggested by Mr A. L. Lewis[1], it is impossible to say. Owing to their complete isolation, for they are with one or two doubtful exceptions confined exclusively to Ireland, they have hitherto remained an unsolved mystery. But they are not monoliths, and being cemented they can scarcely be of any great antiquity, although doubtless pre-Christian, that is, erected before the fifth century. The question is rather archæological than strictly ethnological, at least until these buildings are shown to have racial significance.

The Irish Round Towers.

More important, especially in connection with early migrations, is the subject of the geographical distribution of the neolithic monuments. Broadly speaking, and excluding mere cairns and earth mounds, which may be thrown up anywhere, all the stone structures of the cell and block types, are mainly confined in Asia to the south (Naga, Khasi and Jaintea Hills, the Deccan south of the Vindhya Range, Irania, Asia Minor, Moab, Syria, Palestine, Arabia); in Africa to Mauritania taken in its widest sense (Tripolitana to the Atlantic); in Europe to the south (Crimea, Mediterranean islands, Iberia), the west (Gaul, Belgium, and British Isles) and the north (Scandinavia). Greece and Italy are excluded because the Cyclopean tombs of those regions seem to be of different type, and much more recent, being directly traceable to historic peoples (Pelasgians, Hellenes, Etruscans).

Geographic distribution of the Megaliths.

[1] *Jour. Anthrop. Inst.* IX. p. 144.

Amongst the chief centres of prehistoric tumuli are: (1) *The Bahrein Islands*, Persian Gulf, explored in 1889 by Mr Theodore Bent, who speaks of "a vast sea of sepulchral mounds," comprising "many thousands," and "extending over an area of desert for many miles[1]." Here the chambers are two-storied, the lower cemented and reserved for the human remains, the upper for parting gifts. The roof is formed of flat slabs, the tomb is approached by long passages, and the whole mound is encircled by a retaining wall of huge stones, exactly as at New Grange. Palm branches were found, which had "the flaky appearance of asbestos," showing a great change in the climate of this now "desert" region, which Mr Bent regards as the probable cradle of the Phœnician race.

Chief centres. Bahrein Islands.

(2) *Moab*, of which Canon Tristram writes: "The three classes of primæval monuments in Moab, the stone circles, dolmens and cairns, exist each in great abundance, in three different parts of the country, but never side by side, the cairns being found exclusively on the east, on the spurs of the Arabian range, the stone circles south of the Callirrhoe, and the dolmens north of that valley; one cairn only surrounded by a circle of dolmens is found on the north-west....This fact would seem to indicate three neighbouring tribes, coexistent in the prehistoric period, each with distinct funeral or religious customs" (*Land of Moab*). But this is not so, for such interminglings occur elsewhere, and are to be explained not so much by racial as by cultural differences and climatic changes, as above explained.

Moab.

(3) *Mauritania*, a great centre of neolithic culture, in some places covered with an incredible multitude of every imaginable type of polylith and monolith; described by Barth, Broca, and other more recent observers. "These remains occur in great variety of form, and in vast numbers, as many as 10,000, chiefly of the menhir type, having been enumerated in the Mejana steppe alone. All kinds of megalithic structures are found—cromlechs, circles of stones like Stonehenge, cairns, underground cells excavated in the solid rock, barrows with huge capstones, cupped stones, mounds in the form of step pyramids, sacrificial altars, even porticos or gateways like those of the Jebel

Mauritania.

[1] *Proc. R. Geograph. Soc.*, 1890, p. 13.

Msid, Tripolitana, formed by two square posts 10 feet high, standing on a common pedestal and supporting a huge superimposed block[1]." (4) *Gaul and British Isles*, where both types attain their greatest development in the eastern hemisphere (see above). (5) *Scandinavia*, especially Denmark and parts of Sweden. "They exist in great numbers on the west and south coasts [of Sweden], and advance nearly to the centre of the land, but they are found almost entirely in separate groups, which rarely intermingle; thus the chambered tumuli are found massed together between Lakes Wener and Wetter, a few being scattered on the south coast, and two only on the west, where, as in the south, dolmens without galleries, or cromlechs predominate largely. Between these two groups, but extending farther to the north, we find a great number of cists *not* covered with tumuli, and a few covered either with tumuli or cairns[2]." Here the "few" explain the "great number," representing probably the original condition of all, though, as seen, cists are now commonly constructed uncovered in the Khasi Hills.

Gaul, Britain, Scandinavia.

How is this general geographical distribution to be interpreted, taken especially in connection with the above-described special centres of neolithic culture? It was assumed (p. 115) that after the last ice-age Europe was resettled from two different quarters, the east, and the south or south-east. It was also seen that in the south and south-east, temperate regions during the ice-age, no break need have taken place in the normal evolution of human culture from palæolithic to neolithic times. Here consequently was the seat of early neolithic, as later of early historic, civilization. But civilization means increase of population, which again gives the impulse to migratory movements. Hence from these regions, Mauritania especially, must have come the first and the more civilized stream of migration. Hence also the route followed, across the Strait of Gibraltar and along the

Bearing on the question of early migrations.

Europe resettled in neolithic times from two quarters.

Routes indicated by the presence or absence of megalithic structures.

[1] A. H. Keane, *Africa*, 1895, vol. I. p. 73.

[2] Miss Buckland, *loc. cit.*, p. 158.

west side of Iberia (Portugal) to Gaul and Britain, is everywhere strewn with the monuments of these megalithic builders, apparently a tall dolichocephalic people of non-Aryan speech. Later, much later, came the stream of ruder eastern barbarians who could build no megalithic structures, and none are to be found along the route necessarily followed by them up the Danube to Central and West Europe. Here they came into collision with their predecessors, with whom they ultimately intermingled, driving out some, who perhaps took refuge in Denmark and Sweden, whence the megaliths of Scandinavia.

These wrongly attributed to the Kelts, who follow the non-megalithic route.

These eastern hordes would appear to have been a smaller race of brachycephalic type, also of non-Aryan speech. Their much later arrival gives time for the prodigious development of "neolithic architecture," especially in Brittany and the British Isles. It is thus seen that this architecture is wrongly ascribed to the "Kelts," who certainly arrived by the Danube route, or at least from the east, and who before reaching the extreme west were long settled in a great part of Central Europe (Bohemia, Bavaria, Helvetia, &c.), where they raised no megalithic structures of any kind[1]. At the same time it is conceivable, even probable, that after the fusion of the two races in the west, the practice of building megalithic structures may have been continued for some time, and to that extent the popular traditions would be justified. After the universal adoption of the language of the conquering Kelts, the earlier element would be forgotten except in vague legendary lore, and by later generations everything would be attributed to the "Kelts," just as in Mexico and Central America everything was in the Aztec traditions attributed to the "Toltecs." It is also to be noticed that, coming from the east, the Kelts were probably sun-worshippers, and may very well have adapted such cycloliths as Abury (Avebury) and Stonehenge to the solar cult. Hence their later modifica-

[1] "It is a remarkable fact that no dolmens are found in Central Europe. However obscure the origin of the Kelts...there is no possibility of making the area of their evolution in space and time to coincide with that of the megalithic monuments. In fact the two areas appear to cross each other at right angles" (Dr Munro, *Jour. Anthrop. Inst.* 1890, p. 65).

tions, from which Mr A. L. Lewis concludes that "interment was at most a secondary object," the "primary object" being "worship or sacrifice[1]." But a survey of the whole field of neolithic architecture would seem to show that this is reversing the actual sequence, and that burial connected with the first glimmerings of the religious sentiment, veneration (fear) of the dead, was the true starting point. The connection of these monuments with those of Mauritania has been confirmed by M. Ch. Letourneau, who finds that many of the carvings on the dolmen *des marchands*, Brittany, are almost identical with those of the so-called "rupestrian inscriptions" of Tunisia and South Algeria[2]. But the Mauritanian megaliths do not appear to be in any way connected with the advanced religious ideas with which the builders of the structures in Britain and Brittany are credited by many antiquaries both English and foreign. M. F. Gaillard, amongst others, has endeavoured to show that the alignments of Saint-Pierre, and other menhir systems in the Morbihan district, were erected "in order to indicate the time of year for celebrating the rites and ceremonies in honour of the departed." In support of this view he claims that they are disposed in a line either with the summer solstice or with the autumn equinox, which he supposes may still be verified. But if so, the theory itself would collapse. All agree that the monuments are some thousand years old, for some had already been abandoned and partly overthrown in the time of the Romans. But the position of the earth in relation to the sun varies incessantly, although no doubt slowly. Hence if the alignments were originally disposed as here assumed, they would be so no longer; and on the other hand if they are now so disposed, they could not have been so originally. M. de Mortillet also points out that some of the systems are *coudés*, "bent," which again destroys the "solar myth[3]." In general such advanced astronomic and religious notions may be conceded with Piazzi Smyth and Norman Lockyer

The Astronomic notions attributed to the megalith-builders exploded.

[1] *Jour. Anthrop. Inst.* 1891, p. 286.

[2] Letourneau and de Mortillet, *Bull. d. l. Soc. d'Anthrop. de Paris*, 1893; two papers.

[3] *Bul. de la Soc. d'Anthrop.*, June—Oct. 1889, p. 424.

to the Egyptian temple and pyramid-builders, but not with Lewis and Gaillard to the rude megalith-builders of Gaul and Britain.

Prehistoric monuments in the New World.

Great as are the works of prehistoric man in Britannia, Gaul and Mauritania, they are rivalled by those of prehistoric man in the New World. Reference has already been made to the barbaric mound-builders of the Mississippi basin. South of their somewhat formless structures, follow in almost unbroken succession the *casas grandes* of the Pueblo Indians (New Mexico and Arizona); the truncated pyramids and other remains of the Toltecs and their Nahua successors (Anahuac Tableland); the palace of Mitla (South Mexico) of almost classic beauty; the elaborately ornamented temples, palaces, "convents," raised by the Mayas of Palenque, Uxmal, Chichen-Itza and other cities of Yucatan; the great temples of the sun, the causeways, aqueducts and terraced slopes of the Peruvian Quichuas. Some of these are prehistoric, while others reach well into the historic period. But none can compare in magnitude and exquisite finish with the stupendous megalithic edifices of doubtful origin, which stand in an almost uninhabitable region near the southern shores of Lake Titicaca on the Bolivian plateau, nearly 13,000 feet above sea-level. Although often visited and partly described, full justice has only quite recently been done to these astounding ruins of Tiahuanaco by Herren Stübel and Uhle, who have devoted a sumptuous volume to their description and illustration[1]. The monuments, which cover a large area between the lake and Pumapunga, though chiefly centred about the Ak-Kapana hill, here shown to be a natural formation, not an artificial mound, are of an absolutely unique character, despite certain general resemblances to the neolithic structures of the eastern hemisphere. As shown by the numerous highly polished slabs and blocks lying flat on the ground, as if ready for the mason, it is evident that all formed part of a general design on a scale rivalling that of the

General survey.

Tiahuanaco, culminating glory of American Megalithic Architecture.

[1] *Die Ruinenstätte von Tiahuanaco im Hochlande des alten Peru*, Breslau, 1893.

largest Egyptian temples, but never completed, the works having apparently been interrupted by the Inca conquerors about 120 or 130 years before the arrival of the Spaniards. They must have been in progress for some generations before that time, for the blocks, some weighing from 100 to 150 tons, had been conveyed with primitive appliances from distances of many miles over rugged ground, up steep inclines, and in some cases across several inlets of Lake Titicaca. A number of the blocks are disposed as uprights like those of Stonehenge, with shoulders for the reception of horizontal connecting beams, but far better dressed and mortised. Others form doorways hewn in a single piece, one of which at Ak-Kapana is the crowning triumph of the primitive American architecture[1]. This marvellous monolith, weighing over 12 tons, is richly carved on one face with symbolic devices and the image of Viracocha, tutelar deity of the Bolivian Aymaras, overthrown by the Quechua worshippers of the rival Peruvian sun-god. When the sway of the Incas was spread over the whole of the middle Andean plateau, there was no longer room for two independent and hostile religious centres—Pacca-ritambo and Tiahuanaco, the "Gerizim and Ebal" of the New World; hence the political subjection of the Aymaras to the Quechuas was followed by the inevitable suppression of the Viracocha cult, and the arrest of the Tiahuanaco works by the Incas, shortly before the suppression of the Incas themselves by the Conquistadores. Such was the origin and end of this splendid Aymara culture, in which the transition is clearly seen from the rude and inorganic buildings of neolithic to the true "megalithic architecture" of historic times. Not that the Tiahuanaco works are to be connected with those of the eastern hemisphere, or even traced with Angard, Clements Markham, Middendorff and others to Toltec, Maya or Inca sources. Despite the misleading statements of Garcilaso de la Vega, blindly followed because of his Inca descent by most archæologists, Stübel and Uhle make it clear that the Incas were not the founders but

Tiahuanaco Culture an independent local development.

[1] "Seine Bedeutung überragt...alles was bis jetzt in Peru aufgefunden worden ist. Es zählt unter den merkwürdigsten und interessantesten Resten des vorcolumbischen Amerika" (*Ruinenstätte*, Text, p. 20).

the destroyers of Tiahuanaco, and also that this culture had its origin neither amongst the Mexican Toltecs, nor the Mayas of Yucatan, but is to be regarded as an independent local development amongst the Bolivian Aymaras, elder brothers of the Peruvian Quechuas. But "an independent evolution of different social systems in different environments seems to be a view still beyond the grasp of a certain school of ethnologists and antiquaries, who run to the ends of the earth seeking 'affinities' and 'origins' and 'influences' where none exist, and who 'affiliate' two cults or two peoples, no matter how many continents and oceans may intervene, if only both worship the same sun and moon, forgetting that after all there is but one sun and one moon for people on this planet to choose from[1]." If all peoples, as will be seen in the next chapter, not only come of one stock but have, relatively speaking, diverged but little from their pleistocene precursors, is it surprising that resemblances and parallelisms of all kinds should occur in their independent later evolution?

Almost the concluding words of Dr Robert Munro's address to the Anthropological Section of the British Association, 1893, were that "man's immense antiquity is now accepted by a vast majority of the most thoughtful men." Possibly some of the less thoughtful may also accept the same conclusion from the considerations set forth in the foregoing pages.

[1] A. H. Keane, *Academy*, July 8, 1893, p. 37.

CHAPTER VII.

SPECIFIC UNITY OF MAN.

Specific or Varietal unity decided by extent of divergence between past and present races—Species and Variety—The Physiological test: inter-racial fertility—The Canidæ, Equidæ and Hominidæ—The Palæolithic races—Their remains: Trinil: Homo Neanderthalensis; La Naulette; La Denise; Spy; Kent; Podbaba; Predmost; Marcilly; Mentone; Olmo; Eguisheim; Laugerie; Palæolithic races exclusively long-headed—Neolithic races at first also long-headed, then mixed, and later exclusively round-headed in some places—But all intermingled—Fertile miscegenation established for prehistoric times—In the historic period mixture the rule, racial purity the exception—The Mestizos of Latin America—The Paulistas, Franco-Canadians, and Dano-Eskimo—The United States Indians and half-breeds—Eugenesis established for the New World, and for Africa: The Griquas, Abyssinians, Sudanese, and West African Negroes—Mixed races in Asia, Malaysia, and Polynesia—The Pitcairn Islanders—The physiological test conclusive against the Polygenists—The anatomical test—The Polygenist linguistic argument: Independent stock races inferred from independent stock languages—Fallacy of this argument—Specific Unity unaffected by the existence of Stock Languages—which are to be otherwise explained—The Monogenist view established—and confirmed by the universal diffusion of articulate speech—Psychic argument—The question summed up by Blumenbach.

Specific or varietal unity decided by extent of divergence between past and present races.

In the address referred to at the end of the last chapter it is also stated that "all the osseous remains of man which have hitherto been collected and examined point to the fact that, during the larger portion of the quaternary period, if not, indeed, from its very commencement, he had already acquired his human characteristics. This generalization at once throws us back to the tertiary period in our search for man's early appearance in Europe." It was seen (p. 32) that a tertiary generalized form has been fairly well established by Sergi. The "human characteristics" of the quaternary "osseous remains" have now to be considered, with a view to determining the extent of their divergence from each other, as well as the extent

of the divergence of the living primary divisions both from these quaternary prototypes, and from each other. It is obvious that on the extent of these divergences depends the question of man's specific or generic unity.

Species and variety.

It is not always easy to draw the line between species and mere variety, more especially as to neither of these terms is any longer attached the idea of finality. But, speaking broadly, species may be said to possess a large measure of stability, whereas variety is essentially unstable, holding an intermediate or transitional position between species and species. Variety is species *im Werden*, as the Germans would say; that is, a form breaking away from a specific type, and tending to become itself a new specific type. When, therefore, it is here said that the Hominidæ, past (quaternary) and present (living), are varieties, not species, all that is intended is that the forms diverging from a common precursor are still relatively speaking unstable, not having yet reached that stage which constitutes true species.

Here we have two assumptions, both strenuously denied by many ethnologists, first, that the Hominidæ descend from a single precursor, secondly, that their differences are comparatively slight, or not sufficiently pronounced to be regarded as specific. But both points may, so to say, be determined by one consideration. It is mainly a question of physiology, and all physiologists are now of accord in accepting fertility as the ultimate test of varietal and specific difference. Species and sub-species, varieties and sub-varieties, may, as pointed out by Darwin, "blend into each other by an insensible series," giving "the idea of an actual passage[1]." But, however imperceptible the transitions, they are continuous only so long as fertility persists; where fertility is arrested true species is established. The various breeds of dogs differ far more from one another in respect of form, colour and texture of the hair and relative size, than do the Equidæ from one another; compare on the one hand the skye or the toy terrier with the blood-

The physiological test—inter-racial fertility.

The canidæ and equidæ.

[1] *Origin of Species*, 2nd ed., p. 41.

hound or bull-dog; on the other the ordinary horse with the ass or even the zebra. Yet all dogs are grouped in a single species of the Canidæ, being held to be mere varieties, because where pairing is possible they are permanently fertile among themselves. But the Equidæ form *è contra* so many distinct species, despite their much closer general resemblance, because the cross is a mule. Some zoologists have even spoken of a specific identity of dog and wolf; but nobody denies the specific difference of horse and ass.

Applying this severest of tests to the Hominidæ, it is found that none breed mules, but that all have been permanently fertile amongst themselves since quaternary times; consequently that they form varieties, not species, and are sprung from a single precursor. As regards the past, that is, the palæolithic, neolithic, and prehistoric eras, the point is established for all who accept the general conclusions of the leading French and English anthropologists regarding the "universal miscegenation" of primitive man with later immigrants in Europe, a miscegenation proved by the persistence of pleistocene characters down to the present time (see pp. 34–5). For others, who may perhaps not unreasonably feel somewhat sceptical regarding this persistence of palæolithic characters, a nearer study of primitive man himself may supply a stronger argument for the specific unity of mankind.

The Hominidæ.

Fully authenticated remains of palæo- or even of early neolithic man are not numerous, and those hitherto brought to light are mainly confined to restricted areas—Europe (especially France and North Italy), and South America (Brazil, Argentina). The reason is obvious. Interment appears not to have been practised by the river-drift hunters and other even earlier generations. Hence none of their osseous remains could survive except the few that might have been preserved in caves and rock-shelters. It is accordingly in such "hermetically sealed receptacles" that have been found the skulls, and in still rarer instances the imperfect skeletons now available for the study of primitive man. Subjoined is a tabulated summary of results. The consideration of these might indeed be dispensed with if Virchow's statement that "scientific

The palæolithic races.

anthropology begins with living races," could be accepted. But when Virchow[1] himself tells us that "the first step in the construction of the doctrine of transformism will be the explanation of the way the human races have been formed," it is evident that the oldest known precursors of the present races cannot be overlooked. The truth should now be frankly stated, that, as in the case of Cuvier and Owen, Prof. Virchow's vast knowledge and range of thought have been somewhat neutralized by his excessive conservatism.

Their Remains: Trinil.

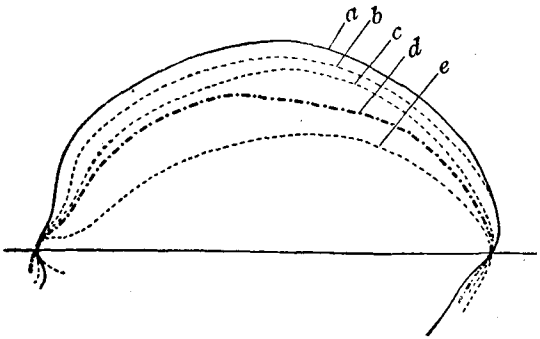
TRINIL, left bank river Bengáwan (Solo), Java; roof of skull, an upper molar, and a femur found (1891—4) by Dr Eugene Dubois in pleistocene (?) bed 12 to 15 metres below the surface, showing characters intermediate between gorilla and Neanderthal, but distinctly human; low depressed cranial arch; index 70; capacity 1000 (?);

PITHECANTHROPUS ERECTUS.
(*Upper surface of skull.*)

very narrow frontal region; highly developed superciliary arches; "the lowest human cranium yet described, very nearly as much below the Neanderthal as this is below the normal European";

[1] *Popular Science Monthly* (quoted), Jan. 1893, p. 373.

femur quite human, 455 mm. long, showing height 1654 mm., that of an average Frenchman, but found 12 or 15 metres from the skull, hence may not belong to the same individual; same remark applies to the tooth, which is very large, but more human than simian. For these remains Dubois forms a new family



OUTLINE OF CRANIA.

a. Ordinary Irish skull; b. Spy cranium; c. Neanderthal cranium; d. Pithecanthropus; e. Gorilla.

(*Pithecanthropus erectus, eine Uebergangsform aus Java*, Batavia, 1894); but they cannot represent a transition between man and any of the existing Anthropoids, Pithecanthropus standing in the direct human line of divergence in the genealogical tree, although considerably lower down than any human form yet discovered (Dr D. J. Cunningham, paper read at meeting R. Dublin Soc. reported in *Nature*, Feb. 28, 1895, p. 428).

NEANDERTHAL (see p. 33); a brain-cap, two femora, two humeri and some other fragments, now in the Fuhlrott Collection, Elberfeld; normal character established by Broca against Virchow's pathological theory; remarkable for its flat retreating curve; dolichocephalic (index 73.76); frontal sutures closed, occipital more or less free; enormous superciliary ridges; altogether the most ape-like skull hitherto discovered; in the vicinity were found remains of rhinoceros, cave bear and hyæna; Chellean epoch (Fuhlrott, Huxley, Broca).

Homo Neanderthalensis.

La Naulette.

LA NAULETTE, near Dinant, Belgium; an imperfect lower jaw found by Edouard Dupont in a large cave on the left bank of the Lesse, which joins the right bank of the Meuse above Dinant; was associated with remains of mammoth, rhinoceros, reindeer; now in the Brussels Natural Hist. Museum; simian characters very pronounced in the extreme prognathism and alveolar process (teeth themselves lost), canine very strong, large molars increasing in size backwards (Dupont).

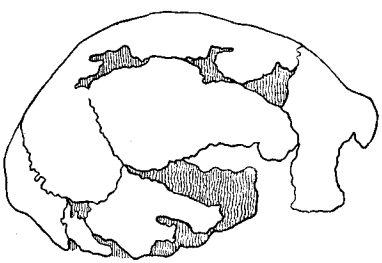
La Denise.

LA DENISE, Espaly-Saint-Marcel commune, Upper Loire; two depressed and retreating frontal bones from an argillaceous limonite under the muddy bed of an extinct volcano; now in the Pichot Collection and Musée du Puy; (neighbouring beds have yielded remains of cave bear and hyæna, mammoth, large hippopotamus, rhinoceros tichorhinus) glabella of one very prominent, recalling the Neanderthal; that of the other also prominent and separated from the retreating frontal bone by a deep depression; superciliary ridge of both large and thick (Aymard, Sauvage, Hamy).

BRÜX, near Prague, Bohemia; a brain-cap and other bones from a quaternary sandpit; now in the Vienna Anthropological Society's Collection; frontal region and flat elongated parietals like those of Neanderthal and Eguisheim, but superciliary bosses larger than the latter (Woldrich, Rokitanski).

Spy.

SPY, Betche aux Roches cavern, left bank Orneau R., Namur district, Belgium; two nearly perfect skeletons (man and woman) found 1886 by Maximin Lohest and



THE SPY CRANIUM.

Marcel de Puydt at a depth of 16 feet, with numerous im-

plements of the Mousterian type; now in the Lohest Collection Liège; enormous superciliary ridges and glabella; retreating frontal region; extremely thick cranial wall; massive mandibular ramus with rudimentary chin; large posterior molars; divergent curvature of bones of the fore-arm; tibia shorter than in any other known race, and stouter than in most; tibia and femur so articulated that to maintain equilibrium head and body must have been thrown forward, as seen in the large apes. These and other characters "place the man of Spy in the lowest category... the dentition is inferior to that of the neolithic man in France... approximates near to the apes, although there is still, to use the language of Fraipont and Lohest, an abyss between the man of Spy and the highest ape" (Cope, *op. cit.* p. 334); associated fauna woolly rhinoceros, elephas primigenius, cave bear and hyæna, &c. five extinct, four existing species (Fraipont, Lohest, Cope).

Kent.

GALLEY HILL TERRACE-GRAVELS, Thames Valley, Kent nearly perfect skeleton found by Mr R. Elliott and Mr Matthew Heys *in situ* at a depth of 8 feet in the Pleistocene high-level gravels about 90 feet above the Thames with numerous palæolithic implements and remains of extinct mammals close by; skull hyperdolichocephalic, extremely long, narrow and much depressed, with height and breadth indexes 67 and 64; glabella and brow-ridges prominent; forehead somewhat receding; all chief sutures obliterated; three lower molars and two premolars in place; last lower molar, which in Neolithic skulls is smaller, is in this specimen as large, if not larger than the first; height about 5ft. 1 in.; altogether most nearly related to the Neanderthal, Spy and Naulette types (Dr Garson); "is the best authenticated record of the occurrence of human remains in the higher river-drift that has yet been brought forward in England" (J. Allen Brown). From the anatomical characters Prof. Sollas thinks it highly probable that the remains were in a natural position and of same age as the gravels, and not merely interred in them at a later (Neolithic) period, as suggested by Sir J. Evans and Prof. Boyd Dawkins (E. T. Newton, *Meeting Geolog. Soc.* May 22, 1895).

PODBABA, near Prague, fragment of skull found 1883 in undisturbed brick-clay 13 ft. thick near remains of mammoth,

rhinoceros tichorhinus, reindeer, &c., at same level; in the large superciliary ridges and depressed frontal region approaches the Neanderthal type[1] (Fritsch, Kerckhoffs, de Mortillet, *L'Homme*, 1884, p. 528).

Podbaba.

PREDMOST; see p. 34.

MARCILLY-SUR-EURE, Evreux district; part of skull also of Neanderthal type, exposed by a railway cutting at a depth of 22 feet, now in Doré-Delente Collection, Dreux; frontal separated by deep depression from the superciliary ridges; frontal suture completely ossified (de Mortillet, *L'Homme*, 1884, p. 48).

Marcilly.

ARCY-SUR-EURE, Yonne, Grotte des Fées; lower jaw found in contact with rhinoceros teeth and Moustierian implements; somewhat modified Naulette type, prognathism less pronounced (Broca, de Quatrefages, and Hamy).

BALZI ROSSI CAVE, Mentone, Liguria, see pp. 73, 114.

Mentone.

OLMO, near Arezzo, Tuscany; skull exposed in 1863 by a railway cutting, 50 feet below the surface in blue lacustrine marl bed, with remains of elephant and a Moustierian implement; now in the Florence Geological Museum; nearly as dolichocephalous as the Neanderthal, but superciliary ridges flat and frontal high; but "judgment must be suspended on this find, surrounded as it is by so much doubt" (Salmon, *op. cit.* p. 17).

EGUISHEIM, near Colmar; part of skull found in 1865 associated with elephas primigenius, now in the local Museum; prominent superciliary ridges; frontal region broad but retreating; sutures very simple and nearly effaced; marked dolichocephaly (Faudel, de Mortillet).

Eguisheim.

LAUGERIE-BASSE, Tayac district, Dordogne; one skeleton (male), two skulls (female); thick parietals, cranial capacity above the modern average in the male and in one female skull, but in the other female very low, about 1,100 cc.; all dolichocephalic (Lartet, Christy, Broca).

Laugerie-Basse.

[1] "The bone has nearly the same appearance as those of the diluvial mammals found in the same clay, commonly considered fossil" (Dr Anthon Fritsch, *Science*, June 27, 1884, p. 786, where illustrations are given).

The foregoing all belong to the various palæolithic epochs, and while all without exception are dolichocephalic (index ranging from about 70 to 75); the distinctly low characters show progressive modifications in the direction of the higher neolithic and modern types. But the general assumption that brachycephaly appears at once with the neolithic age is certainly a mistake. On the contrary, when all the evidence is sifted and correlated, it will probably be made manifest that dolichocephaly even of a pronounced type persisted far into neolithic times, and that it was only very gradually first modified and then replaced in some regions by brachycephaly.

Palæolithic races exclusively long-headed.

In the last Chapter it was shown that Europe was re-settled from two different quarters, by megalithic builders from the south, and from the east by rude hordes who nowhere raised stone structures, and it was suggested that the former were a dolichocephalic (long-headed), the later a brachycephalic (round-headed) people, who arrived in the west at a much later period. If so, and it will be seen that all the facts point in this direction, the persistence of a long-headed type will be at once explained. In Britain, where there was, so to say, a *tabula rasa* owing to the general disappearance if not the actual extinction of palæolithic man, English archæologists are unanimous in holding that the round-headed builders of the round barrows were preceded by the long-headed builders of the long barrows. Consequently in this region dolichocephaly is established for early neolithic times.

Neolithic races at first also long-headed.

So in France, Belgium, Italy and elsewhere the later cave-dwellers and the early dolmen-builders appear to have been all first of long, then of medium, and lastly in some places of exclusively round-headed type. Thus the "*Cro-Magnon* race," as it is called by French anthropologists from the numerous remains found by Lartet, Christy and others in the cave of that name at Eyzies, Tayac district, Périgord (Dordogne), shows a mean cephalic index 73·34 (Broca), hence was distinctly long-headed. This race, however, although most probably early neolithic, is regarded by some as late palæolithic. But there can be no doubt about the neolithic age of the remains from the dolmen of *Maintenon*,

Eure-et-Loir (Index 73·54, Broca); from the *Matarelle* cave, Aveyron (index 73·62, Durand de Gros); from the *Sorgues*, also Aveyron (73·70, de Gros); from the station on *Lake Ladoga*, (ten skulls, mean 73·64, Bogdanov); from the *Soutane* Cave, Navares-de-Aguso, Spain (ten, mean 73·96, Verneau); from the *Baumes-Chaudes* Cave, Lozère (thirty-five, mean 74·06, Broca). Even the numerous skulls from the *Caverne de l'Homme-Mort* ("Dead Man's Cave"), Saint-Pierre-de-Tripiez, Lozère, are all long except two intermediate (mesaticephalic), seventeen ranging from 68·21 to 76·66, and two only rising to 78·53 and 78·85 (Broca). After this round heads begin to appear, as in the dolmens of Lozère (18 long, 6 round, one medium, Broca); and in the sepulchral chambers of the Petit-Morin Valley, Marne (22 long, 10 medium, 12 round, Broca). Then the round grow more numerous, and at last outnumber the long, as at Orrouy, Oise, (7 round, 4 medium, 5 long), and the dolmen of l'Etang-la-Ville, Seine-et-Oise (3 round, no long or mean, Chudzinski). "Towards the close of the neolithic age in France, the round and medium types become eight or ten times more numerous than the long *in certain regions*[1]."

Then mixed and later exclusively round headed in some places.

Similar evidence is yielded by the neolithic caves of Finale (Ligurian Coast), and other parts of Italy (Dr G. Nicolucci); by those of Hallstatt, Austria, and by Furfooz and others in Belgium (Dupont), as well as by the British round barrows, where all types are associated in varying proportions. In England the round heads seem to come in with the metal age, as shown by the contents of their barrows, and it is evident that here, as on the mainland, the two types were gradually merged in a mixed population, which with later superadded elements (Kelts, Teutons &c.), persists to the present time. Permanent miscegenation, that is, mixed races capable of transmitting their kind, is consequently established for the prehistoric populations of Europe. Thus, however they may have differed from each other in outward form, the primitive

But all alike everywhere intermingled.

Fertile miscegenation established for prehistoric times.

[1] Ph. Salmon, *op. cit.* p. 39. To this palæontologist is due the credit of having correlated these important data.

peoples of this region are shown by the physiological test to have been varieties of a single species descended from a pliocene precursor, and the diagram, p. 38, is justified.

In the historic period mixture is the rule, racial purity the exception.

Throughout the historic period the same phenomenon of fertile miscegenation is everywhere presented, to such an extent that amongst the present inhabitants of the globe the rule is mixture, the exception racial purity. When comparative anatomists, such as Broca, Flower, or Garson, cast about for specimens of absolutely pure types, they have to explore such secluded upland valleys as those of Savoy or Auvergne, or else extend their enquiries to remote insular groups, such as the Andamans, Fiji, Tasmania, or Fuegia, and even then they are not always sure. From large ethnical groups—Malays, Mongols, Germans, Sudanese—little is to be gleaned except averages, mostly of doubtful value. But averages mean transitions of all kinds, and transitions could result only from extensive interminglings, which again could take place only between varieties.

The Mestizos of Latin America.

This general inference will be confirmed by a closer survey of the whole field. For this purpose mankind may be divided into two sections, the older groups whose mixed character can only be indirectly inferred from the foregoing considerations, and the more recent groups, whose mixed character can be proved by direct evidence. Of the latter by far the most important are the present inhabitants of Central and South America, the immense majority of whom are confessedly mixed peoples—Lusitano-Americans with a considerable strain of Negro blood in Brazil, Hispano-Americans elsewhere. "Whatever be the pretensions of certain sections of the community, there can scarcely exist in Latin America any really pure race, for the first European immigrants from Mexico to Chili nearly all married native women, and since then twelve generations have followed, diversely modified by unions between every shade of half-breeds. The American populations, which in virtue of these unions belong at once to both races may be estimated at about thirty millions altogether[1]."

[1] Reclus, English ed., XV. p. 52.

But it is pretended that these mestizos are not a stable race, and would disappear or revert to one of the primitive types, but for the constant infusion of fresh blood from Europe. Scarcely any immigration[1] however is directed towards Mexico, the Central American States, Columbia, Venezuela, Peru or Bolivia; yet in all these regions there is a steady increase of population despite epidemics, and physical and political convulsions. Thus:—

Mexico	(1874)	9,343,000;	(1891)	11,643,000.
Salvador	(1886)	651,000;	(1892)	780,000.
Columbia	(1810)	1,000,000;	(1892)	4,200,000.
Venezuela	„	800,000;	„	2,323,000.
Peru	„	1,100,000;	„	3,000,000.
Bolivia	„	800,000;	„	2,350,000.

The Paulistas.

In Brazil the famous "Paulistas" (so called from the province of São Paulo), a cross between the first Portuguese immigrants and the aborigines, have always been the most vigorous and enterprising section of the community. Mainly to them is due the extension of the Portuguese domain from the Atlantic seabord to the eastern slopes of the Cordilleras. In Canada the French element was probably saved from extinction by its alliance with the surrounding Algonquian tribes, and the sturdy Franco-Canadian boatmen and *voyageurs* (trappers and traders) yield to none in energy and physical vitality. In Greenland also the Dano-Eskimo half-breeds are not only a thoroughly constituted race, but they also show qualities in some respects superior to those of either of the original stocks.

The Franco-Canadians and Dano-Eskimo.

The United States Indians and Half-breeds.

In North America proper, Dr Franz Boas, who has made a special study of "the anthropology of the half-breeds," declares that "the present generation of Indians is mixed to a considerable extent with whites and negroes, so much so that in certain regions it is impossible to find a full-blood individual. Thus the

[1] Nearly everywhere immigration is almost *nil*, or balanced by the emigration, the only exception being Peru, which receives a small but steady supply of coolies, chiefly Chinese; these number at present (1895) altogether about 50,000, but most of them return to China at the end of the contract time.

numerous tribes of the Iroquois, Cherokees, Chickasaws and Choctaws contain very few full-blood individuals, if any[1]." It would further appear that while the Indians, as a whole, are decreasing owing to various social, political and other extraneous causes, the decrease is mainly confined to the unmixed element. "Indian women of more than forty years have as an average, approximately, six children, while half-breed women have on an average from seven to eight....The smaller numbers of children are very much more frequent among the Indians than among the half-breeds." In a word "we find the rather unexpected result that the fertility among half-breed women is considerably larger than among full-blood women (*ib.* p. 39).

Eugenesis established for the New World and for Africa.

Thus what Broca calls *eugenesis*, that is, indefinitely fertile miscegenation, is proved for the whole of the New World. It is also proved for South Africa by the persistence for over 200 years of the "bastaards," that is, the Hottentot-Dutch half-castes known as *Griquas*, who form flourishing communities in Griqualand West and East; and also by the Negro-Hottentot half-castes known as *Gonaquas*, "Borderers," scattered in small groups over the eastern provinces of Cape Colony.

The Griquas.

Gallas, Somali, Abyssinians, Soudanese, West African Negroes.

Farther north the Gallas, Somali and Abyssinians of North-East Africa are certainly a blend of the Negro and Hamite on the one hand, and of the Negro, Hamite and Semite on the other. Most of the Soudanese populations also,—Mabas, Baghirmi, Dasas, Kanuri, Hausas, Songhrays, "Toucouleurs," Fulahs—are not negroes, but negroid mixtures of Hamites and aborigines all along the borderlands between the Berber and Black domains. Some of these, notably the Hausas, are greatly superior in many respects to both of the primitive elements. From a careful study of the West African negroes (Senegal to Angola), J. Deniker and L. Laloy conclude generally that they also are a mixture of at least three distinct elements—one very tall, long-headed with broad deeply depressed nose, dominant in the north; another also tall

[1] *The Anthropology of the North American Indian*, in *Memoirs of the International Congress of Anthropology*, Chicago, p. 38.

and long-headed with very broad but less depressed nose, dominant in the south, and a third round-headed, very short and hairy, whose domain lies about the equator[1].

Mixed races in Asia.

In Asia analogous cases occur in Afghanistan, where the vigorous Hazaras and Aymaks are of Mongolo-Persian descent; in Kashmir, where the Baltis, who give their name to the province of Baltistan, are described by Major Biddulph and others as an excellent fusion of Mongols and Aryans[2]; in India generally, where masses of Dravidian and Kolarian aborigines have benefited immensely by their union with the Aryan intruders some thousands of years ago; in Cochin-china, where the Franco-Annamese half-breeds known as Minh-huongs are steadily increasing in numbers and displaying qualities of a sterling character[3]. Most of the Philippine Islanders are the outcome of diverse interminglings, in which the Malay, Negrito, Chinese, Japanese, Spanish and perhaps Polynesian elements are variously represented. But there is no lack of vitality in these mestizos, who have certainly increased in numbers under the Spanish rule.

Malaysia and Polynesia.

In Malaysia many of the so-called "Alfuros" are the result of crossings between the Malays and Papuans, and analogous crossings between Papuans and Polynesians make up a large part of the population in Fiji and Melanesia. A striking instance of the permanently fertile union of two extreme types is afforded by the present inhabitants of Pitcairn Island in the South Pacific. In 1789 the mutineers from the *Bounty*—9 English sailors, 6 male and 15 female Tahitians—settled on this island. But through constant strife and bloodshed these were reduced in 1793 to four Englishmen and ten Tahitian women. Since then, peace having been restored, the community

The Pitcairn Islanders.

[1] *L'Anthropologie*, May—June, 1890, p. 294.

[2] "Les Baltis possèdent tout à la fois la patience et la ténacité du Mongol et l'intelligence élevée avec l'esprit d'initiative qui caractérisent l'Arya" (J. van den Gheyn, *Rev. des Questions Scientifiques*, July 1883, p. 5).

[3] Of these Minh-huongs M. Morice tells us that they "deviennent de plus en plus nombreux, résistent bien le climat...les enfants, fort gentils, ont le nez un peu camus, les cheveux châtains, et le teint un peu plus clair que les indigènes" (*Bul. d. l. Soc. d'Anthrop.*, Feb. 1875).

began to flourish, increasing in 1825 to 66, and in 1891 to 120. These islanders are a robust, active race, of dark complexion but pleasing expression, and very intelligent. Their steady expansion, as shown by the colony founded by them on Norfolk Island, establishes their permanent eugenesis. In general it may be said that in the South Sea Islands it is the full-blood Polynesian natives that are disappearing (Maori, Hawaii, Samoans, &c.), while their place is being taken by half-breeds of all kinds. All these facts, which might be multiplied indefinitely, fully justify Dr Robert Dunn's statement that "half-castes very generally combine the best attributes of the two races from whence they originate[1]."

The physiological test conclusive against the Polygenists.

It may be concluded on inductive evidence that all the Hominidæ are, and always have been, permanently fertile with each other. Eugenesis is the norma, and to it must in fact be attributed the present endless varieties of mankind, which may be said to have almost everywhere supplanted the few original fundamental stocks. The argument in favour of the specific unity of these stocks may be summed up with Dr E. B. Tylor, who remarks that "the opinion of modern zoologists, whose study of the species and breeds of animals makes them the best judges, is against the view of several origins of mankind, for two principal reasons. First that all tribes of men, from the blackest to the whitest, the most savage to the most cultured, have such general likeness in the structure of their bodies and the working of their minds as is easiest and best accounted for by their being descended from a common ancestry, however distant. Second, that all the human races, notwithstanding their form and colour, appear capable of freely intermarrying and forming crossed races of every combination, such as the millions of mulattos and mestizos sprung in the New World from the mixture of Europeans, Africans and native Americans; this again points to a common ancestry of all the races of men. We may accept the theory of the unity of mankind as best agreeing with ordinary experience and scientific research[2]."

[1] *Unity of the Human Species* (physiological and psychological evidence), 1861, p. 5.

[2] *Anthropology*, p. 5.

The anatomical test.

From the now universally accepted doctrine of correlation of parts, Prof. Kollmann draws another argument in support of the unigenist doctrine against polygenist views. After referring to Cuvier's statement that from a single bone it is possible to determine the very species to which an animal belongs, because every bone stands in such a relation to every other, that from its characteristics the characters of all the others may be inferred, he adds: "Precisely on this ground I have mainly concluded that the existence of several human species cannot be recognised; for we are unacquainted with a single tribe, from a single bone of which we might with certainty determine to what species it belonged[1]."

The Polygenist linguistic argument.

Driven from the physiological and anatomical grounds, polygenists have taken refuge in a philological argument, which they consider unanswerable, possibly because anthropologists have hitherto considered it not worth answering. Of course special anthropology, which deals with man only as a member of the zoological series, is not called upon to discuss linguistic questions at all. But they cannot be overlooked by the ethnologist, who has to study man and all his faculties, of which articulate speech is the most characteristic.

Independent Stock Races inferred from Independent Stock Languages.

Abel Hovelacque concludes his *Science of Language* with the remark that "the ascertained impossibility of reducing a multiplicity of linguistic families to a common centre is for us sufficient proof of the original plurality of the races that have been developed with them[2]"; and elsewhere: "If the faculty of articulate speech constitutes the sole fundamental characteristic of man, and if the different linguistic groups known to us are irreducible, they must have taken birth independently and in quite distinct regions. It follows that the precursors of man must have acquired the faculty of speech in different localities independently, and have thus given birth to several races of mankind originally distinct....Had man acquired this faculty in one

[1] *Ueber pithekoide Formen in dem Gesichtsschädel*, in *Correspondenz-Blatt* of the *German Anthrop. Soc.*, Nov. 1883, p. 164.

[2] English ed. 1877, p. 311.

way only, language would have remained substantially the same to the present time, or at least we should detect in all languages some traces of their common descent" (*ib.* p. 304). So also Fr. Müller in his *Allgemeine Ethnologie*, and other polygenists, who confidently argue from fundamentally distinct stock languages to fundamentally distinct stock races evolved in different geographical centres.

Fallacy of this argument.

But the inference is based on a tremendous fallacy, which pervades an immense number of ethnological treatises, and which does not appear to be anywhere adequately dealt with. The irreducible stock languages are unquestioned, and Mr J. W. Powell enumerates as many as fifty-eight for the United States and Canada alone[1]. In the rest of the Continent there must be at least as many more, or, say, at an extremely moderate estimate, one hundred for the whole of America. Are we therefore to conclude that there are also at least a hundred stock races, a hundred distinct species of the Hominidæ in the New World where nevertheless such remarkable physical uniformity prevails? And if so, how were they evolved in a region, where there are not even any anthropoid apes, none higher than the Cebidæ, from which no sane zoologist would attempt to trace the ascent of man? In Australia there are not even any Cebidæ; no apes or monkeys of any kind, no half-apes or lemurs, no placental mammals, except a few species of bats and vampires, but there is at least one stock language. Is therefore the race that speaks it to be derived from bats or vampires, or perhaps marsupials? For the geological record shows that in this region there never have been any higher mammals except the dingo of recent introduction. Here therefore the polygenists must give up the problem, or else fall back on direct creation, or perhaps on Agassiz' exploded hypothesis of several distinct pairs of "protoplasts," with radiation of species from several distinct centres. And all this to avoid the comparatively easy transitions from one variety to another of the Hominidæ.

Specific Unity unaffected by the existence of Stock Languages,

In other parts of the Eastern Hemisphere, such as Sudan,

[1] *Indian Linguistic Families*, &c., Washington, 1891.

Caucasia, Malaysia, stock languages are reckoned by the score. In some districts of Caucasia, the "Mountain of Languages," as it has been called by the Arabs and Persians, almost every upland valley has its distinct form of speech, and although a few of these have been traced to a common source, many have hitherto resisted all the attempts of philologists to classify them in family groups. But the inhabitants of these valleys all belong physically to the same great Caucasic division of mankind, of which they are in fact typical members. Similar relations prevail in the Minahasa district at the extremity of the northern peninsula, Celébes, where in a small tract some 60 miles by 20 over a dozen different languages are spoken. "Some of these may perhaps be more or less dialectic, but the majority are said to be quite distinct, and the people of the different tribes cannot make themselves understood except through the medium of Malay, although, perhaps, their villages may be within three miles of one another[1]." In these regions the absurdity of the argument that infers stock races from stock languages is thus seen in its full force, and the truth of the somewhat trite saying that *quod nimis probat nihil probat* ("what proves too much proves nothing") is strikingly illustrated. It follows, as will more fully appear farther on, that there is no necessary relation at all between race and speech. In other words, however useful as a factor in determining, or helping to determine, the affinities of various races one to the other, language has no bearing whatever on the question of the original unity or diversity of mankind.

which are to be otherwise explained.

Nevertheless the absolute irreducibility of the stock languages is a difficulty, to account for which Prof. Sayce amongst others suggests that "man was speechless when the leading races were differentiated from each other." But to this the same fatal objection still applies, for on this assumption there would be needed not one *homo alalus primigenius*, as postulated by Haeckel, but as many speechless precursors as there are and have been stock languages in all parts of the world. Probably ten times as many stock languages have perished during the long ages since the evolution of speech as still

[1] Dr F. H. H. Guillemard, *Australasia* (Stanford series, new issue), p. 291.

survive. Hence it would be logically necessary to assume that this marvellous evolution took place not ten or twenty but many hundred times in various regions of the globe. A much less violent assumption is the common sense view, not that every distinct language represents a distinct race, but that the several distinct races must have evolved within themselves a greater or less number of distinct languages, that is, of languages which have diverged from a common source so far as to become true species or even genera and classes, while the races themselves have remained mere varieties of a single species.

No true evolutionist can have any difficulty in accepting this view. Linguistic are far more variable than animal or vegetable forms, and in anthropology it is a generally accepted principle that speech changes more readily and more rapidly than physical types. Hence it is more easy to conceive all the present linguistic orders deriving from an original germ or inorganic state of primitive speech, than all the present animal and vegetable orders deriving from original animal and vegetable germs. The only difference is that the biological series are proved by palæontology, whereas the early linguistic series must necessarily be postulated, because extinct forms of speech leave no fossils behind them. Historic languages, however, leave documents, and some of these documents, such as the Hindu Vedas, reveal an enormous divergence in the course of a few thousand years within the limits of a single linguistic family. Compare, for instance, modern English with Sanskrit, Zend or Homeric Greek, all members of the Aryan group. From what has taken place in this relatively short historic period, any extent of divergence may be conceived as possible, and indeed necessary, during the immeasurably longer prehistoric period, until a stage is reached when no resemblance at all will be perceptible between the primitive and later Aryan tongues. They will have become radically distinct, that is, stock languages.

Thus the existence of the present stock languages is no argument at all for the disparity of the human family; while on the other hand the fact that every single member of that family is a speaking animal supplies perhaps the very strongest argument for the specific unity of all its branches. Waitz aptly remarks that

"inasmuch as the possession of a language of regular grammatical structure forms a fixed barrier between man and the brute, it establishes at the same time a near relationship between all peoples in psychical respects....In the presence of this common feature of the human mind, all other differences lose their importance[1]." And he quotes Pott as saying that "if theology feared that an original difference of language might implicate the original unity of the human species (which by no means follows), the science of language restores to theology the psychical unity of mankind, compared with which the physical unity must yield in importance" (*ib.*) This argument in favour of unity, based on psychological grounds, was urged with much force and eloquence by Dr Prichard, who pointed out that "the same inward and mental nature is to be recognised in all the races of men. When we compare this fact with the observations, fully established, as to the specific instincts and separate psychical endowments of all the distinct tribes of sentient beings in the Universe, we are entitled to draw confidently the conclusion, that all human races are of one species and one family[2]."

The Monogenist view established and confirmed by the universal diffusion of articulate speech.

Psychic Argument.

Blumenbach, true founder of scientific anthropology, has summed up the whole question from the physical standpoint in words which have lost nothing of their force since they were penned a hundred years ago. He asks whether everywhere in time or place mankind has constituted one and the same, or clearly distinct species; and he concludes: "Although between distant peoples the difference may seem so great, that one may easily take the inhabitants of the Cape of Good Hope, the Greenlanders and Circassians for peoples of so many distinct species, nevertheless we shall find, on due reflection, that all, as it were, so merge one in the other, the human varieties passing gradually from one to another, that we shall scarcely if at all be able to determine any limits between them. Hence those varieties of mankind have proved extremely arbitrary both in

The question summed up by Blumenbach.

[1] *Anthropology*, p. 273.

[2] *Natural History of Man*, p. 488

number and description, which have been accepted by distinguished men[1]." The last remark will receive its full justification in the next chapter.

[1] "Sintne fuerintne omnis ævi omnisque gentis homines unius eiusdemque diversæve plane speciei...Quamquam tanta inter remotiores gentes interesse videatur differentia, ut facile Capitis Bonæ Spei accolas, Groenlandos et Circassios pro tot diversæ speciei hominibus habere possis, re tamen rite pensitata, ita omnes inter se confluere quasi, et sensim unam in alteram transire hominum varietatem videbis, ut vix ac ne vix quidem limites inter eas constituere poteris. Maxime arbitrariæ ideo et numero et definitione evaserunt quas cl. viri receperunt generis humani varietates" (*De generis humani varietate nativa*, 1795, p. 40).

CHAPTER VIII.

VARIETAL DIVERSITY OF MAN: PHYSICAL CRITERIA OF RACE.

Difficulties of defining, and determining the number of, the primary human varieties—Schemes of the first systematists: Bernier; Linné; Blumenbach; Cuvier; Virey; Desmoulins; Bory de Saint-Vincent; Morton; Gliddon and Agassiz; Latham; Carus; Peschel—The Philologists—The Ethnologists: Buffon; Prichard—The Anatomists: Geoffroy Saint-Hilaire; Retzius; Broca; Virchow; Mantegazza; Barnard Davis; Rolleston; Flower; Cope—Recent Schemes: Haeckel's; de Quatrefages's; Huxley's; Broca's; Fr. Müller's; Deniker's; Flower and Lydekker's—General remarks on these Groupings—Elements of Classification: Physical and Mental Characters—Physical tests of Race: Colour of the Skin—Colour and Texture of the Hair—The Beard; Hirsuteness—Shape of the Skull—Cephalic Indices—Tables of Dolicho-, Mesati- and Brachycephali—Gnathism—Facial Index—Table of Sub-nasal Prognathism—The Dentition—The Nose: Nasal Index—Colour and Shape of the Eye—The General Expression—Stature: Tables of Heights—Other Physical Factors.

FROM the foregoing considerations it appears that the Hominidæ constitute a family group, that is, a group connected, however distantly, by the ties of blood derived from a common pliocene precursor. It further appears that several distinct members of the group were already established in pleistocene times in every part of the then habitable globe. It follows that the present races of mankind are to a certain extent of diverse origin, that is to say, descend in diverging, converging or parallel lines from their several pleistocene precursors, without anywhere developing specific differences. But to this very fact of their relatively close kinship is due the great and admitted difficulty of determining the number and character of the existing primary groups. It was seen that because the Equidæ form so many true species, systematists find it an

Difficulty of defining and determining the number of the primary human varieties.

easy task to define and describe their main divisions. On the other hand the grouping of the Canidæ, which form varieties only, presents almost insuperable difficulties to classifiers.

In this respect the position of the Hominidæ is entirely analogous to that of the Canidæ. All being fertile *inter se*, although possibly in different degrees, and several having early acquired migratory habits, endless new varieties have constantly been formed since remote prehistoric times, both by segmentation of early groups, and by countless fresh combinations of already established varieties. Outward modifying influences must have been brought into play as soon as the first-named groups began to migrate from their original homes, and such influences, intensified by the climatic changes accompanying the advance and retreat of glacial phenomena, would increase in activity according as the primitive tribes spread farther afield. To these influences of the surroundings were soon added the far more potent effects of interminglings seen to be at work already in neolithic times, and thus the development of fresh sub-varieties of all sorts proceeded at an accelerated rate. This process has necessarily continued down to the present time, resulting in ever-increasing confusion of fundamental elements, and blurring of primæval types. Hence it is not surprising that many ethnologists should accept as a truism the statement that "there are no longer any pure races in the world[1]."

Schemes of the first systematists.

To this ethnical confusion, which has been traced back to the megalith-builders, and even to the Furfooz, Finale, and other cave-dwellers, must be attributed the amazing diversity of opinion that has prevailed and still prevails amongst anthropologists, even as regards the number of the primary divisions of mankind. The first serious attempt at a systematic grouping of the Hominidæ has been accredited to F. Bernier (1625—88), who distinguished (1672) four radical types: the European white, the

Bernier.

[1] "Le seul *substratum* sur lequel nous pouvons opérer, les divers *peuples*, *nations*, *peuplades*, *tribus* &c., tels qu'ils sont actuellement répartis sur la terre, ne sont que les mélanges d'éléments souvent très hétérogènes. La phrase: 'Il n'y a plus de races pures sur la terre,' est devenue un cliché" (J. Deniker, *Bul. d. l. Soc. d'Anthrop.*, June 6, 1889, p. 322).

African black, the Asiatic yellow, and the northern Lapp! Then came the great systematist Linné (1738—83) with his *Homo monstruosus*, *Homo ferus*, and *Homo sapiens*. The *Homo ferus*, being dumb and covered with hair, answers somewhat to Haeckel's *Homo alalus*, while the group *Homo sapiens* comprises four species: the fair-haired, blue-eyed and light-skinned European; the yellowish, brown-eyed, black-haired Asiatic; the black-haired, beardless, tawny American; the black, woolly-haired, flat-nosed African. Blumenbach (1752—1840) followed (1775) with his five varieties bearing a nomenclature that still largely persists: *Caucasic*, *Mongolic*, *Ethiopic*, *American* and *Malay*. But Blumenbach later (1795) fell back on Linné's four species which, however, he distributed somewhat differently, assigning to the Caucasic most of Europe, Cis-gangetic Asia and the region stretching northwards from the Amur basin; to the Mongolic Trans-gangetic Asia north to the Amur "with the islanders and great part of the Austral lands"; to the Ethiopic Africa; and to the American all the New World except the northern coastlands, that is, the Eskimo domain, which he includes in the Mongolic division[1]."

Linné.

Blumenbach.

Then ensued a period of orthodox reaction against the Lamarckian ideas headed by Cuvier (1773—1838), who held by fixity of species, but inconsistently admitted three races, the Caucasic, Mongolic and African, supposed to answer to the biblical Japhetic, Semitic and Hamitic families. This of course caused a great outcry, and in fact was the starting-point of the monogenist and polygenist theories, which were discussed in the last chapter. In 1801 Virey (1775—1840) reduced Cuvier's three divisions to two distinct *species*, white and black, each with three main *races* or sub-species, which again comprised a number of secondary groups. But this could not satisfy thorough-going polygenists, such as Desmoulins, who started eleven human species in 1825, and next year raised them to sixteen; Bory de Saint-Vincent, who in 1827 discovered fifteen species, including such nebulous

Cuvier.

Virey.

Desmoulins.

Bory de Saint-Vincent.

[1] *Op. cit.* p. 42.

groups as "Scythians," "Neptunians," "Columbians"; lastly the American school, which in the hands of Morton, Gliddon, Knox, Agassiz and others brought about an inevitable reaction by threatening to increase the number of species indefinitely. Other groupings, which were marked by greater sobriety, and which still possess some historic interest, were those of Hamilton Smith (Caucasic, Mongolic, Tropical); Latham (Japhetic, Mongoloid, Atlantides); Karl G. Carus (four divisions somewhat phantastically named *Nachtmenschen*, "Night-men," the Negro; *Tagmenschen*, "Day-men," the Caucasian; *östliche Dämmerungsmenschen*, "Men of the eastern twilight," Mongolo-Malayo-Hindu peoples; and *westliche Dämmerungsmenschen*, "Men of the western twilight," the American aborigines); lastly Peschel (Australian with Tasmanian, Papuan, Mongoloid with Malayo-Polynesian and American, Dravidian, Hottentot with Bushman, Negro, Mediterranean, *i.e.* Blumenbach's Caucasian).

Morton, Gliddon, Agassiz.

Latham.

Carus.

Peschel.

A fresh element of confusion, which still clings to ethnological studies, arose out of Frederick Schlegel's little treatise on the "Language and Wisdom of the Hindus" (1808), which was later declared by Max Müller to have revealed a new world, and to have shown what unexpected services Anthropology might derive from the science of language. Unfortunately these services were pushed too far when philologists entered the field, and claimed to hold in language the key to the solution of all ethnological problems. This again led to another reaction, caused especially by the attempt to identify race and speech, and to set up as many independent physical as there are independent linguistic groups, as discussed in the last chapter. When it was seen that such views led, like those of Nott, Gliddon and Knox, to an unlimited number of human species and varieties, a violent divorce took place between philology and ethnology, a divorce which will be dealt with farther on with a view to a possible reconciliation of the two schools.

The philologists.

Meanwhile the way had been prepared for a more rational treatment of racial diversity by Dr James Cowles Prichard, who

not without reason is by many regarded as the true founder of ethnology as a distinct branch of general anthropology. At least he may share this honour with Buffon, who so early as 1749 had undertaken *l'Histoire Complète de l'Homme*, as a part of his great work on the Animal Kingdom (1749—88). Both of these great writers avoided, perhaps wisely, any systematic groupings, but brought to bear a great store of learning, combined with much acute reasoning, on the natural history of the various divisions of mankind, as they presented themselves in their several geographic areas. But while Buffon was mainly descriptive (Ethnography), the comparative method is conspicuous in Prichard (1785—1848), whose writings (*Eastern Origin of the Celtic Language; Physical History of Mankind*, &c.) are consequently of a strikingly ethnological character, and possess great permanent value.

The ethnologists: Buffon, Prichard.

His *Crania of the Laplanders and Finlanders*, continued by the more solid work of the elder Retzius in the same field, gave a fresh impulse to craniological studies which had already been cultivated by Morton, and on which Geoffroy Saint-Hilaire based his four fundamental types: orthognathous, eurygnathous, prognathous and eury-prognathous (1858). Thus were laid the foundations of the comparative study of the Hominidæ based on their physical characters, a line of inquiry which in the hands of Broca, de Quatrefages and Hamy (*Crania Ethnica*), Topinard, Virchow, Kollmann, Mantegazza, Pruner Bey, Barnard Davis, Beddoe, Huxley, Thurnam, Turner, Rolleston, Flower, Macalister, Garston, Cope and others, has led to fruitful results. On these physical characters, for the most part irrespective of speech or other mental qualities, were established fresh groupings, which have entirely superseded the more extravagant polygenist classifications, while showing a general tendency to revert to Linné's and Blumenbach's primary divisions in various more or less modified forms. As reference is constantly made in ethnological writings to one or more of these groupings, a brief summary is here appended of the more important.

The anatomists: Geoffroy Saint-Hilaire, Retzius.

Broca, Quatrefages, Virchow, Mantegazza, Barnard Davis, Rolleston, Flower, Cope.

Recent schemes. Haeckel's. Quatrefages's.

ERNST H. HAECKEL'S SCHEME.

Ulotriches (Woolly-haired)	Lophocomi (Tufted):	Papuans; Hottentots.
	Eriocomi (Fleecy):	Kafirs; Negroes.
Lissotriches (Lank-haired)	Euthycomi (Straight):	Malay, Mongol, American, Arctic, Australian.
	Euplocomi (Curly):	Dravidas, Nubians, Mediterranean.

DE QUATREFAGES'[1].

Trunks.

Souche (Root)	White or Caucasic	Boughs, Branches, Families, Groups, &c.
	Yellow or Mongolic	
	Negro or Ethiopic	

HUXLEY.

(LEIOTRICHI, "smooth-haired," and ULOTRICHI, "woolly-haired," adopted from Bory de Saint-Vincent.)

Ulotrichi: yellow-brown to jet-black; hair and eyes dark; mostly long-headed; Negro, Papuan.

Leiotrichi: (*a*) *Australoid*, dark skin, hair, and eyes; hair long and straight; prognathous; Australians, the blacks of the Dekkan.

(*b*) *Mongoloid*, yellow-brown, or reddish-brown; dark eyes; long, black, straight hair; mesaticephalous; Mongols, Chinese, Polynesians, Eskimo, Americans.

(*c*) *Xanthochroid*, fair skin, blue eyes, abundant fair hair; mesaticephalous; Slavs, Teutons, fair Kelts.

(*d*) *Melanochroid*, pale skin, dark eye, long black hair; Iberians, Berbers, dark Kelts.

[1] *Classification des Races Humaines*, p. 298. Here the terminology is defective, the word *group* being *indefinite*, while all the others are *definite*. An attempt is made in working out the scheme to correlate the three fundamental linguistic to the three fundamental physical groups. But the result is vitiated by the prevailing misconception regarding the so-called "Monosyllabic Languages."

BROCA.

I. STRAIGHT-HAIRED: 1. *dolicho*, Eskimo; 2. *brachy*, (*a*) red, Prairie Indians; (*b*) olivaster, Mexican, Peruvian; (*c*) yellow, Guarani, Samoyede, Mongol, Malay.

II. WAVY or CURLY-HAIRED: 1. *dolicho*, (*a*) blonde, Cimmerian, Scandinavian, Anglo-Saxon; (*b*) brown, Mediterranean (Basque, Corsican, Berber); Semite; (*c*) black, Australian, Indo-Abyssinian; (*d*) red, Fulah, Red Barabra (Nubian); 2. *brachy*, blonde, Finn; chestnut, Kelt, Slav; brown, Iranian, Galcha.

III. WOOLLY-HAIRED: 1. *dolicho*, (*a*) yellowish, Bushman, (*b*) black, Oceanic, Papuan; Africa, Kafir; 2. *brachy*, Negrito.

FREDERICK MÜLLER.

I. WOOLLY: 1. *Tufted*, Hottentot, Papuan; 2. *Fleecy*, Negro, Kafir.

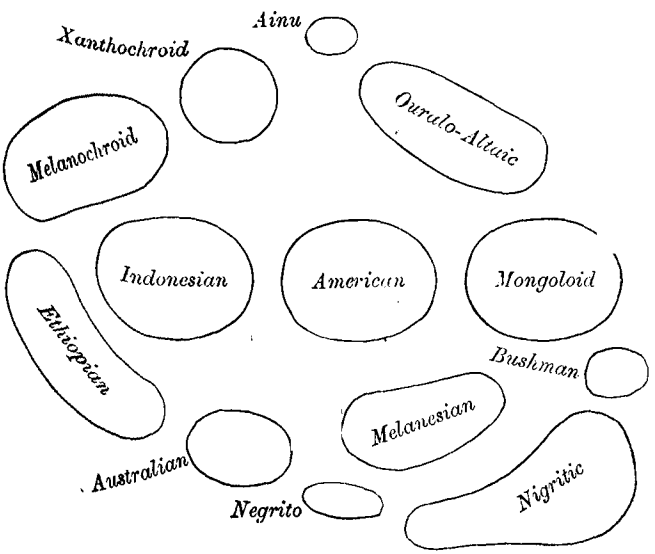
II. SMOOTH: 1. *Straight*, Mongol, Arctic, American, Malay, Australian; 2. *Wavy*, *curly*, Dravidian, Nubian, Mediterranean.

J. DENIKER.

This remarkable scheme[1] needs a word of explanation. On the assumption that every ethnical group results from a fusion of two, three or more "races," the characters of each of which are persistent, it follows that every such group must contain within itself two, three or more distinguishable strains, here called "types." Thus there are more "types" than "races," which at first sight sounds paradoxical, and from thirteen racial groups are in fact evolved "thirty types," set forth in a scheme primarily based on the different textures of the hair. The races themselves are further disposed in a space of two dimensions (three being impracticable) in order the better to show their mutual affinities, which could not be done in the usual linear arrangement[2]. Thus:—

[1] *Bul. d. l. Soc. d'Anthrop.* June 1889.

[2] "Pour bien présenter ces affinités, il faudrait disposer les groupes suivant les trois dimensions de l'espace, ou du moins sur une surface où l'on a la ressource de deux dimensions. C'est ce que j'ai essayé de faire sur le tableau suivant où les races sont disposées approximativement d'après leurs affinités



FLOWER AND LYDEKKER[1].

I. *Ethiopian*, *Negroid* or *Melanesian*: Negro, Negrillo, Bushman, Papuan (Oceanic Negro), Australian.

II. *Mongol*, *Xanthous* or *Yellow*: Mongols, Malays, Polynesians, Americans somewhat doubtfully as an "aberrant" branch.

III. *Caucasic* or Eurafrican: Huxley's Xanthochroi and Melanochroi.

None of these schemes profess to be more than tentative efforts at a satisfactory classification, where the initial difficulty lies in the fact that the groups themselves are already mixed. Some are based on positively

General Remarks on these Groupings.

dites naturelles" (*ib.* p. 328). No doubt the unfortunate use of the word "type" has damaged this scheme, which however in the details gets entangled in several incongruities, due to the difficulty of separating fused or juxtaposed strains from the different racial groups.

[1] *Introduction to the Study of Mammals*, p. 743.

erroneous data, such as Huxley's, which treats the Eskimo as mesaticephalous (intermediate between the long and the round heads), whereas they are, next to the Fijian Kai-Colos, the most dolichocephalic of any race. So with Haeckel's and Fr. Müller's Hottentots and Papuans, grouped together on the ground of the "tufted" hair growing in separate bunches, which, however, is characteristic, not of the Papuans, but of the Hottentots and Bushmen alone. Even in these the hair grows uniformly over the scalp, as amongst all other races, and not in *isolated* tufts with intervening bald spaces, as is often asserted. Owing to the peculiar clumpy growth such spaces merely simulate baldness, though in old age they actually do become bald, thus giving rise to the prevailing mistake[1]. Broca brackets Fulahs and Nubians together because of their common "red" colour, neither being red, and both being in other respects quite distinct—the Nubians being originally Negroes from Kordofan mixed with Bejas and other eastern Hamites, and the Fulahs originally and still partly Saharan Hamites, mixed here and there with Mandingans and other West Sudanese Negroes. Fr. Müller appears to be primarily responsible for this "Nuba-Fulah Family," constituted on a linguistic base, the two languages being fundamentally distinct[2]. Again, what is to be made of the expression "Indo-Abyssinian," or even "Abyssinian" at all as an ethnical term. The very word (*Habeshi*) means "mixed," and in African ethnology "Abyssinian" conveys no more meaning than does "Hungarian" in European ethnology; both are *national* not *racial* designations, and as a Hungarian may be a Magyar, a Slav, a Rumanian or a Teuton, so an Abyssinian may be a Hamite (Agao and others), or a Semite (Tigré and others).

[1] "Ce dernier caractère [cheveux laineux] atteint son maximum dans les chevelures dites *en grains de poivre* ['peppercorn' growth] que l'on a cru longtemps pousser par touffes isolées. De nouvelles recherches et une observation très précise de M. Topinard ont montré qu'il n'en est rien" (De Quatrefages, *op. cit.* p. 203). See also J. Deniker, *Rev. d'Anthrop.* 1883, p. 496, where the error is explained by the fact that "très souvent les cheveux des Papous [Hottentots] s'enchevêtrent et forment de petites boules simulant des touffes séparées."

[2] A. H. Keane, *Ethnology of Egyptian Sudan*, p. 16.

From a general survey of the various schemes, it appears that special, if not paramount, importance is given by these systematists to the three elements of complexion, character of the hair, and shape of the skull. And, in general, physical features are relied on, not merely in preference to, but to the total exclusion of mental qualities. Yet in determining the relative position of ethnical groups these cannot be overlooked, else ethnology remains merely a sub-branch of special anthropology, which as seen confines itself to the human anatomy, and disregards the intellectual side, in virtue of which alone the Hominidæ constitute an entirely separate division of the animal series. Nor can it be said that the mental endowments are all alike, and consequently useless for schematic purposes. On the contrary they show far greater diversity than do the physical qualities, as is evident from the single fact that, as seen, languages form distinct species and genera, while the various human groups constitute varieties only. Hence due account will here be taken of the mental as well as of the physical characters, as criteria of racial affinities.

Elements of Classification: physical and mental characters.

Precedence may be claimed for colour, at least as the element which occurs first to the observer, and on which, probably for that reason, the first groupings were determined. Nevertheless we are warned by Linné himself not to trust too much to this character: *ne nimis crede colori*, and physiology now tells us that it is mainly, if not essentially, a question of climate and, quite possibly, diet[1]. It appears that the pigment, or colouring matter, under the epidermis, or rather under the second (Malpighian) skin, which was formerly supposed to be peculiar to the Negro, is really common to all races, only more abundant in the former than in the latter. This greater abundance itself seems due to the stimulating action of the solar heat combined with moisture and an excess of vegetable food, yielding more carbon than can be completely assimilated, the character being then fixed by heredity. Waitz (*op. cit.* pp. 46—52) adduces many examples to

Physical tests of race.

Colour of the skin.

[1] "Principem tamen inter omnes nigredinis causas locum tenebit clima, solis aerisque potentia cum vitæ genere" (Blumenbach *op. cit.* p. 50).

show that "hot and damp countries favour the darkening of the skin," and that the same race tends to be much darker in low, marshy districts than on the neighbouring uplands. Lepsius, a good observer, declares somewhat emphatically that the hotter the climate, the darker is the colour of the Negro; he adds that, proceeding from Africa eastwards the isothermal line of greatest heat intersects the regions in southern Asia, which are inhabited by the darkest peoples of that Continent[1]. There may be some exaggeration in this statement, and there are certainly many apparent exceptions to the general law regarding the direct relation of heat to colour. But the exceptions are probably either due to local causes, or to the absence of one or other of the factors which combine to darken the pigment. Thus Schweinfurth (*Heart of Africa*) attributes the reddish hue of the Bongos and other Negroes of the hot, moist White Nile basin to the ferruginous nature of the laterite soil, and the same cause appears to have produced the same result amongst the A-Zandeh (Niam-Niam) of the Welle valley.

In America all shades within certain limits seem to be intermingled irrespective either of latitude, temperature, or relief of the land. Thus in Bolivia are found in juxtaposition the coppery Maropas, the dark brown Aymaras, the yellowish Moxos and the light Mosetenos, Siriones and Guarayos[2]. So in Australasia the yellow-brown Malays living about the equator present a striking contrast to the almost sooty black Tasmanians of the south temperate zone. But physical as well as moral characters are the outcome not of one or two but of many causes acting simultaneously on the organism, which cannot escape either from its environment or from its own tendencies. Hence such seeming discrepancies are to be attributed either to descent (dark peoples migrating to cold, light to warm regions), or to various local circumstances and other influences, such as dryness, moisture, food, aspect, altitude or flora (herbaceous or arboreal) of the land, by all of which the complexion may be diversely affected, and

[1] *Nubische Gram. Einleitung.* This isothermal does not coincide in Africa with the equator, but is deflected in the north to about 12°—15° N., precisely where are found the Wolofs and other Negroes of the deepest dye.

[2] A. H. Keane, *Indians* (*American*) in *Encyc. Brit.*, 9th ed.

mere temperature largely neutralised. The Negro migrating from the moist tropical zone northwards and southwards, or transplanted to the cooler regions of America, will for an indefinite period retain his inherited dark colour, which, whatever its origin, has to a large extent become a racial character. On the other hand the Semitic and Hamitic inhabitants of the intensely hot but also intensely dry regions of Arabia and the Sahara, are of distinctly light complexion, not perceptibly darker than many South Europeans.

It is important to note that the palms and soles of the Negro are never black, but always yellowish, that the dark pigment is wanting in the Negro fœtus, and that Negro children are born "of a light grey colour" (Waitz, p. 99). Hence it might be inferred that the dark colour, with which a thicker skin is correlated, is a later development, an adaptation of the organism to a hot, moist malarious climate, in which the Negro thrives and the white man perishes. Thus colour taken alone cannot be regarded as an entirely trustworthy test of race, the less so that even blackness[1] is not an exclusively Negro character, but common also to many eastern Hamites (Agaos, Bejas, Somals, Gallas), and to numerous aborigines of India. Nevertheless it is far too important a factor to be overlooked, and taken in combination with other characters will lead to satisfactory results. Although the transitions, as in other physical traits, are complete, there appear to be about six primary colours to which all the human groups may be referred, as under:—

Black: African and Oceanic Negroes; Australians; Tasmanians; some aborigines of India and America; Eastern Hamites.

Yellow: Mongols; Indo-Chinese; Japanese; Tibetans; some South-Americans; Bushmen; Hottentots.

[1] An absolutely black complexion is of extremely rare occurrence in any branch of the Negro group. This may be easily seen by comparing the colour of the face of the average African or Papuan with that of his hair, which is usually intensely black. The skin will always show a lighter, as well as a different shade, so much so that a Negro with face and hair of exactly the same sombre hue would look like some monstrous *lusus naturæ*, or some stage figure, such as the Othello whose weak points were detected by Blumenbach during his visit to London (1816).

Brown: Polynesians; Hindus; Plateau Indians of America; many Negritoes; Fulahs.

Coppery red: Prairie Indians ("Redskins").

Florid white: Northern Europeans; Lapps; Finns; Xanthochroid Caucasians generally.

Pale white: Southern Europeans; Iranians; many Semites and Western Hamites; Melanochroid Caucasians generally.

Colour and texture of the hair.

A glance at the foregoing schemes of classification will suffice to show that the hair, if not regarded as of more importance than the complexion, has at all events steadily risen in favour with systematists. Its fortune, so to say, was made by the classical memoir, "On the human hair as a race character, examined by the aid of the microscope," read by Dr Pruner-Bey before the Paris Anthropological Society, March 19, 1863[1]. Since then this element, previously little attended to, has been made the base or leading character in the groupings of some of the most eminent recent ethnologists. The reason is that both colour and texture of the hair are found to be extremely constant characters, resisting time and climate with wonderful tenacity, and presenting remarkable uniformity throughout large sections of the human family. Thus all the American aborigines from Fuegia to Alaska, as well as most of the Mongoloid, Malay, and Eastern Polynesian peoples, are invariably distinguished by the same black, lank, somewhat coarse and lustreless hair, round or nearly round in transverse section. No other single physical trait can be mentioned which is to the same extent characteristic of several hundred millions of human beings distributed over every climatic zone from the Arctic to the Antarctic waters, and ranging from sea-level (Fuegia, Mackenzie estuary) to altitudes of 12,000 and even 16,000 feet (Bolivian and Tibetan plateaux). So also short black woolly, or at least crisp, or frizzly hair, elliptical and even somewhat flat in transverse section, is a constant feature of the Negroes, Hottentots, Bushmen, Negritoes, Papuans, Melanesians, Tasmanians, in fact of all the distinctly dark Negroid populations, say, of 150 million members

[1] An English translation appeared in the *Anthrop. Rev.* February, 1864. The genera conclusions arrived at by this eminent anthropologist have been confirmed and extended by the later researches of Topinard and others.

of the human family. The only important exception are some African pigmies, the Wochua amongst others, whose hair is described by Junker as "of a dark, rusty-brown hue." This observer adds that "this is certainly one of the most marked peculiarities of the race, for the hair of all other Negro peoples, however light-coloured they may otherwise be, is always the deepest black[1]." Lastly hair of intermediate types, black, brown, flaxen, red, smooth, wavy or curly, and generally oval in transverse section, prevails amongst both sections of the Caucasic division, which may now be estimated at 700 or 800 millions. Hence the quality of the hair has naturally come to be regarded as one of the safest, if not the very safest test of racial purity, and Pruner-Bey goes so far as to suggest that "a single hair presenting the average form characteristic of the race might serve to define it," adding, however, that "without pretending to this degree of certainty, it is indubitable that the hair of the individual bears the stamp of his origin" (p. 23)..

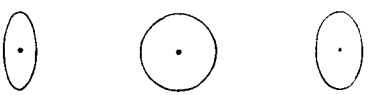
It might be objected that hair can have only a secondary importance, because, unlike the cranium, it is limited in point of time, no specimens having survived from the palæo or neolithic eras. But the Egyptian mummies (some of the fourth dynasty) show that for at least 6000 years this feature remains unchanged. Hence it may perhaps be inferred that the primary divisions of mankind were always distinguished by the same texture and colour of hair as at present. But it is specially noteworthy that, as pointed out by Topinard[2], the white group comes nearest to the higher apes in this respect, the black being the farthest removed, and the yellow intermediate. The *lanugo* of the human fœtus would seem to imply that the pliocene, or at all events the miocene precursor was a furred animal, and fur might easily pass in one direction into lank, in another into woolly, crisp, or intermediate types (cf. the goat and sheep). By the wavy intermediate forms may perhaps be bridged over the otherwise impassable gulf between the lank- and the woolly-haired Hominidæ. Unless the present human varieties are studied with reference to a generalised precursor, as the Solidungula and other mammalian groups are studied,

[1] *Travels in Africa*, III. p. 82.

[2] *L'Homme dans la Nature*, 1891, chap. VI.

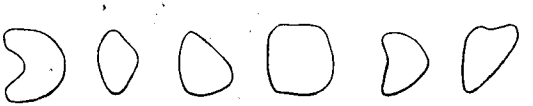
it will be difficult for monogenists to hold their ground against the pluralists.

From Pruner's microscopic studies it appears that, apart from its colour, the structure of the hair is threefold: 1. Short, crisp or fleecy, usually called "woolly," elliptical or kidney-shaped in section, with mean diameters 20 : 12 in hundreds of millimetres; no perceptible medullary tube, and often relatively flat especially in Papuans; colour almost invariably jet black; characteristic of all black races except the Australians and aborigines of India. 2. Long, lank, of the horse-mane type, cylindrical, hence round or nearly so in section, with diameters either about 24, or if elongated 27 : 23; distinct tube filled with medullary substance; colour mainly black or blue black; characteristic of all American and Mongoloid peoples. 3. Intermediate, wavy, curly or smooth; oval in section, with long and short diameters 23 : 17 or 20 : 15; distinct tube, but empty or diaphanous; all colours from black through every shade of brown to flaxen, red and towy; characteristic of most Caucasic peoples, but in the eastern Hamites and some others developing long ringletty curls. Besides the three typical transverse sections:—



Flat ellipse (Negro). Circle (Mongol). Oval ellipse (European).

considerable diversity is presented by some hair, whose sections take square, triangular, kidney-shaped or other forms, as thus:—



In general the flatter the hair the more it curls; the rounder the more stiff and lank it becomes, these two extremes being respectively represented by the Papuan (diameters 29 : 10 or 25 : 7) and the Japanese (section a perfect circle). It would also appear that of all forms the woolly is the most persistent, as well shown by the Brazilian Cafusos, Negro and native half-breeds, who are

mop-headed like many Papuans. A triple hybrid also, figured by de Quatrefages (p. 48) and described as "half Negro, a quarter Cherokee and a quarter English," has short, crisp, furry-looking hair, and it would seem as if in this respect the Negro hair had least deviated from the suggested original fur type.

The beard.

With the hair of the head is correlated that of the face, of which it will suffice here to remark that the beard is properly characteristic only of the Caucasic group. All American, Mongoloid and Negroid peoples are normally beardless, the chief exceptions being the Australians and some Melanesians. Fully developed beards, combined with a general hirsuteness, occur also sporadically amongst certain isolated groups, such as the Todas of Southern India, the Veddahs of Ceylon, and especially the Ainus of Japan[1]. The significance of these facts will be dealt with farther on.

Shape of the skull.

With the shape and size of the skull as racial tests we seem to enter debateable ground. On its size obviously depend the volume and weight of the brain, on which, as seen (p. 44), largely but not exclusively depends the mental capacity. Hence this factor will best be considered in the next chapter dealing with the intellectual qualities. With regard to the shape, to which our remarks will consequently here be confined, it may be admitted that no physical character has been more extensively studied with, on the whole, such indifferent results. Hence the emphatic protests that have been uttered by Wallace (p. 43), and some other eminent naturalists against craniology as affording trustworthy data for ethnical classifications. Even professional craniologists often express disappointment at the poor returns for the labour expended. Thus Topinard, for whom this line of research forms "the first chapter in anthropology," is fain to confess that craniology "in its present phase is still a science of analysis and of patience, and not yet a science of synthesis[2]." Miklukho Maclay also, finding the heads of New Guinea Papuans varying as much as from 62 (ex-

[1] Many of Junker's Wochua dwarfs "had full beards and hairy breasts," though his observations "did not confirm the statement that many of these pigmies have very hirsute bodies" (*Travels in Africa*, III. p. 82).

[2] *Anthropology*, p. 206.

tremely long) to 86 (round), appears at last to have lost faith in craniology as a racial test. He asserts in one place[1] that it cannot be regarded as a means of distinguishing between Negritoes and Papuans, both displaying an obvious tendency towards brachycephaly.

But it should be noticed that Maclay appears to have measured mostly mixed Papuan specimens, and Sir W. Flower has placed it beyond doubt that the typical Negritoes are brachycephalous, the typical Papuans extremely dolichocephalous. Some other generalizations may also be considered as fairly well established, as, for instance, that the African Negroes, Hottentots, and Bushmen are normally long-headed, as are also the Arabs (Semites), the Berbers (Hamites), the Xanthochroid Europeans and the Eskimo, while most of the Mongoloid peoples are round-headed, the Malays and American aborigines mixed. A general survey of the ascertained facts leads to the inference that of itself the shape of the skull is an extremely persistent character, but that it becomes easily modified, not perhaps by climate or other outward influences, but certainly by intermixture. It follows that remarkable uniformity prevails, not only amongst the primitive palæolithic races (all long-headed, p. 149), but also amongst many relatively pure living races, such as the Galchas, Savoyards and Auvergnats (all round-headed), and the Fijian Kai-Colos (all long-headed), these peoples being preserved from contact with their neighbours by their secluded upland or insular homes. Hence also mesaticephalous (intermediate) forms may have their value in determining the presence of two or more ethnical elements, as in America and Malaysia.

Craniologists generally assume two fundamental types, the dolichocephalous or long horizontally, that is, from back to front, and the brachycephalous, or approximately round horizontally[2]. The types are determined by the so-called cephalic index numbers, that is, the relation of the antero-posterior diameter (measured from the glabella to the farthest point of the occiput) to the transverse diameter

Cephalic Indices.

[1] *Isvestia*, 1879, p. 39, quoted in *Nature*, Nov. 20, 1879.

[2] Gr. δολιχός, long; βραχύς, short, and κεφαλή, head. These terms, which play such a large part in anthropological works, were introduced by the elder Retzius, true founder of craniology.

from side to side. The former being taken at 100, the latter will range from about 60 to 95 or even more, increasing with the greater degree of brachycephaly, and vice-versa. Excluding artificial deformation, the extremes appear to lie between 61·9 a Kai-Colo of Viti Levu, Fiji, measured by Flower[1], and 98·21 a Mongolian of doubtful provenance described by Huxley. This last approaches the perfect circle, which is never presented by the normal head, though exceeded (103, 105?) by pathological or deformed specimens. Most peoples are mesaticephalous, that is to say, they are of mixed descent, and it has been seen that the intermingling began in neolithic times. Hence it is that, speaking broadly, the horizontal index is now applicable less to the primary than to the secondary divisions of mankind[2]. The statement, for instance, that the African Negroes are normally dolichocephalic, is subject to numerous exceptions (Bongos, A-Zandeh &c.), while the Eskimo, who ought apparently to be brachycephalic, are on the contrary extremely dolichocephalic.

Tables of Dolicho-, Mesati- and Brachycephali.

To meet the endless transitions between the two extremes, Broca has proposed a convenient fivefold division[3], which being frequently referred to in anthropological writings, is here appended:

1. Dolichocephali, with index No. 75 and under.
2. Sub-dolichocephali, ,, ,, ,, 75·01 to 77·77.
3. Mesaticephali, ,, ,, ,, 77·78 to 80.
4. Sub-brachycephali, ,, ,, ,, 80·01 to 83·33.
5. Brachycephali, ,, ,, ,, 83·34 upwards.

A few examples of each will suffice for a character which, as shown, has mainly a sub-varietal value only:

1. *Dolichocephali.*

Kai-Colo (mean)	65·	Neanderthal	72·(?)
Australian	71·49	Hottentot and Bushman	72·42
Eskimo (Greenlander)	71·77	Kafir	72·54

[1] *Jour. Anthrop. Inst.* Nov. 1880, p. 157.

[2] "L'indice horizontal ne caractérise pas les groupes primaires de l'humanité. Mais il retrouve toute son importance dans la répartition des races appartenant à chacun d'eux" (De Quatrefages, *op. cit.* p. 215).

[3] *Rev. d'Anthrop.* 1872, p. 385 et seq.

1. *Dolichocephali* (cont.)

W. African Negro	73·40	Low-Caste, Calcutta	74·17
Cro-Magnon	73·34	Berber	74·63
Nile Nubian	73·72	Laugerie Basse	74·85
Algerian Arab	74·06	Baumes-Chaudes (Lozère), one	75·

2. *Sub-dolichocephali.*

Dolmens N. of Paris	75·01	Anglo-Saxons	76·10
Guanches (Canaries)	75·53	Polynesians (some)	76·30
Old Egyptians	75·78	Copts (Modern Egyptians)	76·39
Ainus (some)	76·	Basques of Guipuzcoa	77·62
Tasmanians	76·11	Chinese	77·60

3. *Mesaticephali.*

Ancient Gauls	78·09	Hawaiians	80·0
Mexicans (normal)	78·12	Afghans	79 to 80·0
Dutch	78·89	Ossetians	80·0
Prussians	78·90	Petit-Morin (Marne) and others from Neolithic Caves and dolmens	80·0
S. Americans (various)	79·16		
N. Americans ,,	79·25		

4. *Sub-brachycephali.*

French Basques	80·25	Italians (North)	81·80
Low Bretons	81·25	Andamanese	81·87
Mongols (various)	81·40	Finns	82·0
Turks (various)	81·49	Little Russians	82·3
Javanese	81·61	Germans (South)	83·0

5. *Brachycephali.*

Indo-Chinese	83·51	Burmese	86·
Savoyards	83·63	Armenians	86·5
Croatians	84·83	Solutré, one	88·26
Bavarians	84·87	Peruvians	93·0
Lapps	85·07	Huxley's Mongol	98·21

Some value has also been attached to the vertical index (high and broad), which, when it rises to or exceeds 100, determines the so-called hypsistenocephaly characteristic of the Malicolos and other Melanesians.

But of all cranial measurements none is more important than that which determines the varying degrees of *gnathism*, that is, the greater or less projection of the upper jaw, which itself depends on the angle made by the whole face with the brain-cap. The more obtuse the angle, the greater will be the maxillary projection (*prognathism*); the more vertical the face, the less the projection (*orthognathism*)[1]. Hence gnathism, which is best seen in profile, is indicated by the so-called "facial angle," accepted by all anthropologists as one of the best criteria of race. The evolution, which is intimately associated with the dentition and change from raw to cooked food, has obviously been from the extreme projection of the higher apes and of primitive man (see profiles p. 183) to the nearly vertical position of the Mongolic and Caucasic groups. Hence prognathism is naturally regarded as characteristic of the lower, orthognathism of the higher races. "The profile of the face of the Calmack is almost vertical, the facial bones being thrown downwards and under the fore part of the skull. The profile of the face of the Negro, on the other hand, is singularly inclined, the front part of the jaws projecting far forward beyond the level of the fore part of the skull. In the former case the skull is said to be orthognathous, or straight-jawed; in the latter it is called prognathous—a term which has been rendered with more force than elegance by the Saxon equivalent—snouty[2]."

Gnathism.

Combining this feature with *eurygnathism*[3], that is, lateral projection of the cheek-bones, Geoffroy Saint-Hilaire found that the Caucasic face is oval with vertical jaws; the Mongolic broad (eurygnathous); the Negro prognathous; the Hottentot both pro- and eurygnathous.

Nevertheless Topinard, who has made a special study of gnathism in all its bearings, distinguishes between a superior and an inferior facial angle, the former (general facial gnathism) being fallacious, the latter, that is, sub-nasal gnathism, being alone trustworthy. "Anthropologists have been wrong up to the present time in giving so much importance to the projection of the whole

[1] Gr. ὀρθός, straight; πρό, before; γνάθος, jaw.

[2] Huxley, *Man's Place in Nature*, p. 146.

[3] Gr. εὐρύς, wide, broad.

maxilla, or of the whole face.... There is no uniformity of results in any given series, the most flagrant contradictions being met with between averages in allied races.... But sub-nasal, or true prognathism, furnishes of itself the differential character of the various human types[1]." Sub-nasal gnathism is determined by the angle formed by a line drawn from the nasal spine (sub-nasal point) to the anterior extremity of the alveolo-condylean plane. This plane, which gives the total projection of the skull, is about parallel with the horizontal line of vision, coinciding with a line drawn from the alveolar point (median point of the alveolar arch) at right angles to a perpendicular falling from the occipital condyles. Topinard gives the subjoined table of results :—

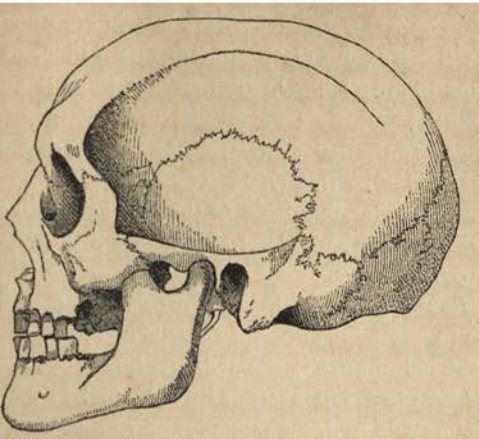
Facial Index.

True or sub-nasal prognathism.

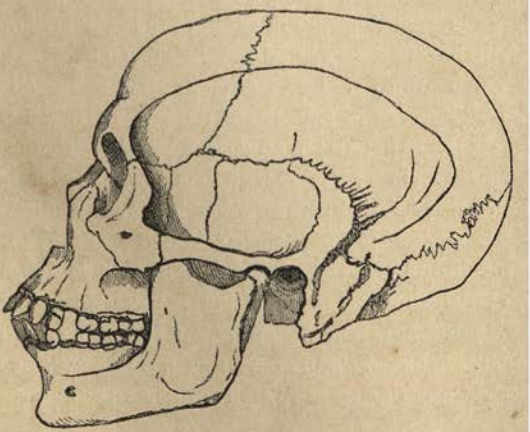
Individual extremes		89° to 51·3°	Merovingians	76·54°
Averages	White races	82° „ 76·5°	Finns and Esthonians	75·53°
	Yellow „	76° „ 68·5°	Tasmanians	75·28°
	Black „	69° „ 59·5°	Tahitians	75·°
Guanches		81·34°	Chinese	72·°
Corsicans		81·28°	Eskimo	71·46°
Gauls		80·87°	Malays	69·49°
Dead Man's Cave		79·77°	New Caledonians	69·87°
Parisians		78·13°	Australians	68·24°
Toulousians		78·5°	W. African Negroes	66·91°
Auvergnats		77·18°	Namaquas and Bushmen	59·58°

From this table it appears that the facial is never a right angle, so that absolute orthognathism does not exist. All races are more or less prognathous, the European least, the Negro most, the Mongol and Polynesian intermediate. In Europe the most orthognathous appear to have been the Gauls, Corsicans and Neolithic men, the Finns the least. The high position of the Tasmanians in the series is remarkable and puzzling, one of those disturbing elements that render all classifications so hazardous. Otherwise

[1] *Anthropology*, Part II. ch. iii.



ORTHOGNATHOUS SKULL OF KALMUC.
After von Bauer.



PROGNATHOUS SKULL OF NEGRO.

the difference between Caucasian and Mongol is very marked, while from the latter to the Negro the transition is gradual. "The Negroes of the east coast of Africa are less prognathous than those of the west; the Negroes of Oceania less than those of Africa; the purest Hottentots reach the highest maximum of the whole human race" (*ib.* p. 282).

The Dentition.

The above-mentioned correlation of the teeth with gnathism gives to this character a racial value scarcely if at all inferior to that of the facial angle itself. Of the facts already determined the subjoined are amongst the most important.

Sir W. Flower shows that the molars are larger in the lower races, where they may occupy on the alveolar arch the same compass as in the chimpanzee. That this relation has persisted from the remotest times is evident from the fact that in the man of Spy (p. 146) "the molars increase in size posteriorly to the same extent that they do in the apes, which is the reverse of what is usual in man, where they diminish posteriorly, or in a few lower races (Australians &c.), remain equal[1]." In this palæolithic race the premolars approximate "the relative dimensions seen in the chimpanzee," while the third molar even exceeds that of the chimpanzee, "reminding one of some of the gibbons" (*ib.* p. 333). Thus may perhaps be explained the curious fact that, as noted by Dr Houzé, "the third molar is often as large as the others in the lower races[2]," whereas in Europeans the last molar is disappearing through disuse, so that the jaws contract and prognathism diminishes, as already shown by Darwin and Mantegazza. To this contraction, however, is due the marked irregularity of the dentition in civilised man, the teeth getting crowded together for want of space in the shrunken jaws. In savage tribes this defect scarcely occurs, but on the contrary supplementary teeth appear, as amongst the New Caledonians, where Bertillon and Fontan have noticed a fourth molar. "Cette anomalie est en rapport avec le caractère inférieur du prognathisme et l'ampleur de la mâchoire[3]."

[1] E. D. Cope, *The Genealogy of Man*, in *The American Naturalist*, April 1893, p. 332.

[2] *Bul. d. l. Soc. d'Anthrop. de Bruxelles*, 1894, p. 136.

[3] Houzé, *ib.* p. 137. In the same place Bourgade is referred to as stating

On the other hand wear and tear depends mainly on the quality of the food, hence varies with the social conditions, being greater amongst the lower (coarse eaters), than amongst the cultured classes. Consequently, however paradoxical it may sound, the intelligence would appear to be in inverse ratio to dental wear; "plus celle-ci [usure] est considérable, plus celle-là [l'intelligence] est rudimentaire" (*ib.*). In a word it must be obvious that use and disuse necessarily play a vast part in the character of the masticatory apparatus, which is otherwise so persistent, and consequently such a valuable test of race. Every morsel of food taken into the mouth at once brings the teeth and jaws into play; hence these organs, remaining for ages unchanged in unchanged surroundings, may be modified with relative rapidity by change of diet through altered habits of life.

The Nose.

Few physical characters yield more uniform results than does the nose, which is normally thin, prominent, long, straight or else convex (arched or hooked) in the higher races, in the lower short, broad, more or less concave and even flat. A careful study of this organ shows almost better than any other the coordination of parts in the facial features generally. Thus the small flat concave is usually correlated with high cheek-bones and narrow oblique orbits (Mongol); the short with wide nostrils and depressed root, with everted lips and bombed frontal bone (Negro); the short with blunt rounded base and depressed root, with heavy superciliary ridges and long upper lip (primitive Australian and Tasmanian); the large, straight or arched, with regular oval features (Semite and European). Hence the nasal index, which expresses the relation of the maximum breadth of the anterior orifice to the maximum length from the nasal spine to the naso-frontal suture, is regarded by Broca as one of the best tests of ethnical differences. Note that the nasal spine, or sub-nasal point, lies at the base of the outer or lower extremity of the carti-

that amongst the New Caledonians the canines "très souvent dépassent en longueur le niveau des autres dents." It is further pointed out that the jaws of the pariah dogs in Constantinople are wolfish, while the tenderly nurtured King Charles has lost the typical dentition of the species. "Au lieu d'avoir six molaires et prémolaires au maxillaire supérieur ils n'ont plus que trois ou quatre, et les cuspides sont pour ainsi dire nulles" (F. L. de Pauw, *ib.* p. 140).

laginous septum separating the nostrils; also that the centre of the naso-frontal suture (where the nasal joins the frontal bone), lies at the root of the nose midway between the orbits (sockets of the eyes). Taking the length as 100, the relation varies absolutely from 72·22 in a Bushman to 35·71 in a Russian, and between these extremes are distinguished three groups, as under:

Nasal Index.

	INDEX
1. *Platyrrhinian*[1], with wide nasal skeleton (all Negroid races; most Mongols) . . .	58–53
2. *Mesorrhinian*[1], intermediate (all Americans except Eskimo)	52–48
3. *Leptorrhinian*[1], elongated (Caucasic races; Eskimo)	47–42

A few examples in ascending order will suffice:

Hottentots	56·38	Peruvians	50·23
Tasmanians	56·92	Polynesians	49·25
Nubian Negroes	55·17	Mongols	48·68
W. African Negroes	54·74	Chinese	48·53
New Caledonians	53·66	Parisians	46·81
Australians	53·39	Basques (French)	46·80
Javanese	51·47	Basques (Spanish)	44·71
Lapps	50·29	Eskimo	42·33

In the eye both colour and shape have to be considered. The colour of iris and sclerotic is of less value in the higher than in the lower races, where it is more uniform, more persistent and more generally correlated to the complexion. Thus the European iris is of every shade from black to brown, hazel, and light blue, although even here dark is normal in the Melanochroid division, light in the Xanthochroid; sclerotic in both whitish. But in the Negroid and Mongoloid groups the iris is generally almost black, or deep

Colour and shape of the eye.

[1] Gr. πλατύς, broad, flat; μέσος, middle, median; λεπτός, slender, thin; ῥίς (Gen. ῥινός), nose; terms introduced by Geoffroy Saint-Hilaire to classify the monkey tribe, and later applied to the Hominidæ.

brown, the outer being always darker than the inner circle; sclerotic of the Negro yellowish. The shape has no great racial value, except in the Mongol division, where it is characteristically slant, with outer angle turned upwards, and the inner often covered by a fold of loose integument. This occurs even amongst some Eskimo, covering the *caruncula lachrymalis*, and "forming, as it were, a third eyelid in the form of a crescent[1]." The Semitic eye is also somewhat almond—shaped, or at least more oval than the European; but the character is not constant.

The general expression.

Sometimes the face as a whole is mentioned as of distinctive value; but this is rather the result of diversely combined elements than an additional factor. According to the form and disposition of the orbits, forehead, nose, cheek-bones, jaws, lips, &c., the features assume a general expression, a racial physiognomy, which is sufficiently constant, though liable to be affected by dress and ornament. The average observer notices, not so much particular points, as this general expression of the countenance, which was often correctly reproduced by the Egyptian, Babylonian, and Assyrian artists. Thus have been transmitted from early historic times several racial types —Akkad, Semite, Hittite, Hamite, Negro. There are broadly distinguished four characteristic faces:—

Simian, due to extreme prognathism, seen best in profile: Negro; Negrito.

Broad and flat, due to lateral projection of cheek-bones and small nose, seen best in front; Mongol.

Hatchet-shaped, due to lateral projection of the maxillaries; Prairie Indian.

Regular, determined by orthognathism, oval contour, large nose, small mouth, straight eyes; Caucasic races.

Stature.

Stature, like the eye, is more uniform amongst the lower than amongst the higher races, where it is largely affected by pursuits, town or country life, agricultural or industrial occupations in mines or factories, and so on. Hence there are not only tall and short Americans, such as the Patagonians

[1] King, *Physical Characters of the Esquimaux*, in *Jour. Ethnol. Soc.* Vol. I. 1848.

and their Fuegian neighbours, but also tall and short Englishmen, and even tall and short Londoners, as is evident by comparing the East End population with those of "club-land."

Excluding the abnormal dwarfish and gigantic specimens of the showmen, the height ranges from about 1·40 to 1·80 metre with a mean of 1·70, or, say, between 4 feet 7 inches and 6 feet 2 inches with a mean of $5\frac{1}{2}$ feet; this for the male adult, from which for the female must be deducted about 8 per cent. in the tall and 5 per cent. in the short races. The sub-joined tables of heights, chiefly from Broca and Topinard, show that all the Negritoes are dwarfish, the true Negroes tall, the Mongols rather below the average, the Americans extremely variable[1]:—

Tables of Heights.

Tall Races: 1·70 *upwards.*

Patagonians	1·781	Australians (some)	1·718
Brown Polynesians	1·762	Scandinavians	1·713
Iroquois	1·735	Scotch	1·710
W. African Negroes	1·724	English	1·708
Kafirs	1·718	Eskimo (Western)	1·703

Middle-sized: 1·70 *to* 1·65.

Irish	1·697	Eskimo (Central)	1·654
Danes	1·685	Caucasus tribes (some)	1·650
Belgians	1·684	French	1·650
Charuas (S. America)	1·680	Hindus and Dravidians	1·645
Arabs (some)	1·679	Jews	1·637
Germans (some)	1·677	Magyars	1·631
New Caledonians	1·670	Nicobar Islanders	1·631
Fuegians (some)	1·664	Chinese	1·630
Kirghiz	1·663	Araucanians & Botocudos	1·620
Russians	1·660	Sicilians	1·618
Rumanians	1·657	Finns	1·617
Berbers	1·655	Indo-Chinese	1·615

[1] The figures are in metre with 3 decimals as allowing greater accuracy than vulgar fractions, to which they may be roughly reduced by making 1 metre $= 39\frac{1}{3}$ in. and ·05 = 2 in. Thus, Wissmann's Batwa:

$$1{\cdot}40 = 39\tfrac{1}{3} + 16 = 55\tfrac{1}{3} = 4 \text{ feet } 7\tfrac{1}{3} \text{ in.}$$

Short: 1·60 *and under.*

Peruvians	1·600	Melanesians (some)	1·536
Malays	1·596	Veddahs	1·535
Australians (Sydney)	1·577	Negritoes	1·478
Orissa tribes	1·569	Bushmen	1·404
Kurumba (Nilghiri)	1·539	Batwa (Wissmann's[1])	1·400
Lapps	1·536	Wambutti (Stanley's[2])	1·360
		Akka (Emin's[3])	1·250

In general the stature, as applied to all the Hominidæ, would appear to be a question of averages, almost more than any other important physical character. The absolute range, however, as here seen, is limited to about two feet (Patagonians—Wambutti).

In recent years anthropologists have made systematic studies of several other anatomical points, such as size of the pelvic basin, relative length of the extremities, span of the outstretched arms, finger markings (Galton). Some of these have doubtless some racial value, and when applied to a sufficiently large number of subjects from various peoples may be expected to yield good results. But most of the points vary too much to be of any service in determining human varieties, though useful in identifying individuals[4]; hence their increasing interest in connection with the new science of "Criminal Anthropology," cultivated especially in Italy and France.

Other physical factors.

[1] *My Second Journey through Equatorial Africa*, 1891, p. 165.

[2] *In Darkest Africa*, 1890, II. p. 150. At p. 92 Stanley states generally that the Wambutti "vary in height from three feet to four feet six inches" but the above is the shortest measured by him. Three feet, or a little over, have also been spoken of by other travellers; but no trustworthy measurements of adults seem to fall much below about 4 feet.

[3] "The measurement of their height I have taken from Emin Pasha's anthropological notes; he has measured a good number of them, mostly women but men or women have never exceeded 4 feet 1 inch in height" (A. J. Mounteney-Jephson, *Emin Pasha and the Rebellion at the Equator*, 1890, p. 372).

[4] "The other parts of the skeleton also have differences more or less pronounced in the different ethnic groups—the stature, the length of the extremities both absolutely and relatively to the stature and to the trunk, the thoracic form, and so on. But such differences are but slightly characteristic in comparison to those presented by the brain-case and the face" (Sergi, *Le Varietà Umane*, quoted in *Nature*, April 18, 1895, p. 595).

CHAPTER IX.

VARIETAL DIVERSITY OF MAN: MENTAL CRITERIA OF RACE.

Cranial Capacity—Size of brain and Mental Capacity correlated in the animal series—and partly in man—Comparative Tables of Cranial Capacity—Language the chief mental criterion—Relation of speech to Anthropology—Phonesis a physical function which cannot be neglected by the anthropologist—Value of language to the ethnologist—Evolution of speech from the inorganic to the organic state—The faculty originated most probably in a single centre—Reply to the linguistic polygenists—Speech of relatively recent growth—Hence at first unstable and subject to great fluctuations—Hence also linguistic divergence more rapid than physical types, forming species and genera which cannot mix—Hence no mixed languages—Consequent value of speech as a racial test—Linguistic more easily distinguished than physical groups—Table of mixed peoples speaking unmixed languages—Table of peoples whose speech has shifted without mixing—Table of peoples whose physical type has changed, their speech persisting—Hence speech and race not convertible terms—But speech often a great aid in determining ethnical elements—The morphological orders of speech—Old views of linguistic growth—The "Root" theory—Monosyllabism not the first but the last stage of growth—The sentence the starting-point—The monosyllabic languages originally polysyllabic—Chinese the result of phonetic decay—The Aryan root theory exploded—Root and Atom; Sentence and Molecule—Agglutination—Its nature and test—The morphological orders not fixed species—but transitional phases of growth—Inflection reverts to Agglutination—Agglutination passes into Inflection and Polysynthesis—Polysynthesis not a primitive but a late condition of speech—Differs in kind from Agglutination—Nature of Inflection—Diagram of linguistic evolution—Development of speech not linear but in parallel lines—Synthesis and Polysynthesis tend towards monosyllabic analysis—Change from pre- to post-position in the Aryan group—Change the Universal Law of all living speech—Social state: Fishing, Hunting, Agriculture, no test of race—Social Usages poor criteria—Religion—Origin and development of nature and ancestry worship—Anthropomorphism due to the common psychic character of man—Hence common religious ideas no proof of common origin or of contact—Like usages no evidence of common descent.

Cranial Capacity.

As already remarked, the size as distinct from the shape of the skull, gives its volume or "capacity," which although to be carefully distinguished from the mental capacity (p. 42), stands, nevertheless, in close association with the mental characters. As the size of the brain-pan is necessarily correlated to the volume of its contents, the brain; so on this volume to some

extent depends the quality of the mind, of which the brain is the organ. The lighter and smaller the organ—that is, smaller relatively to the whole organism—the weaker, *cæteris paribus*, will be its functional power. Hence the cranial capacity, although a physical factor, serves as a connecting link between the physical and mental criteria; and if gradation can here be shown between different races, we shall be able to speak on solid grounds of high and low varieties of the Hominidæ. The limitations of each will also be more clearly seen, and the inherent inequality of the various members of the human family made evident against the preconceived theories of sentimentalists. On this basis, for instance, it might be fairly argued that man, specifically one on the physical side, may not be so on the mental. In the lower orders of the animal series the gradation in question undoubtedly exists, the ratio between weight of brain and body diminishing rapidly in the ascending order, thus :—

Size of brain and Mental Capacity correlated.

Fishes 1 to 5,668.	Birds 1 to 212.
Reptiles 1 to 1,321.	Mammals 1 to 168.

Similarly between the highest anthropoid and the lowest human brain there is a tremendous gap, that of the gorilla weighing only 20 oz. while that of the most degraded savage weighs 32 oz. in a body scarcely half the weight of the gorilla's. Again, according to Morton the size of the smallest human skull, as measured by its capacity, is 55·3 cubic inches, that of the largest 114, while the difference between the smallest and that of the gorilla is considerably more than that between the smallest and largest normal human brains[1]. Herbert Spencer considers the brain of civilised man nearly 30 per cent. larger than that of the savage.

But, as explained in Chap. III., mental power depends also on the number of cerebral convolutions, and still more on the quantity of grey cortical substance contained in both hemispheres. Here also the gulf between the lower and higher orders is vast, though relatively slight between the anthropoids and man. "Between the smooth brain of the wistitis (lowest of the Hapalidæ), and the marvellously complicated brain of chimpanzee and orang,

[1] Charles Bray, *Anthropology*, p. 23.

there is a gap, while there are but faint shadows of difference between the latter and that of man. The enormous and complex mass of convolutions in man...is composed of the same fundamental folds, united by the same connections and separated by the same sulci[1]." Nevertheless, as already pointed out, considerable differences exist between the human varieties in respect of the secondary convolutions, which are smaller and more complex in the higher races. But this subject has hitherto been little studied, and ethnology has still to depend mainly on comparative tables of cranial capacity (volume), such as those here appended from Topinard and Barnard Davis.

Comparative Tables of Cranial Capacity.

Topinard.	*grammes.*	*Barnard Davis.*	*grammes.*
English and Scotch	1427	English	1425
Germans	1382	Eskimo	1396
Austrians	1342	Chinese	1357
French	1334	Dahoman	1322
African Negroes	1238	Australian	1197
Annamese	1233		
Cape Negro	974		

Subjoined is Morton's table, re-arranged by de Quatrefages, showing mean capacity in cubic inches:—

English	96	Cherokees	84
Germans	90	Shoshons	84
Anglo-Americans	90	African Negroes	83
Arabs	89	Polynesians	83
Græco-Egyptians	88	Chinese	82
Irish	87	Hindus	80
Malays	86	Egyptians (Ancient)	80
Persians	84	Fellahs	80
Armenians	84	Mexicans	79
Circassians	84	Peruvians	75
Iroquois	84	Australians	75
Lenapé	84	Hottentots	75

[1] Broca, *Mémoire sur les Primates*, 1869. See also Topinard's Diagram, p. 40.

The incongruities of this table have already been noted, and such tables have as a rule but little value, the observations being seldom made on a sufficient number of specimens.

Language the chief Mental Criterion.

A better index of the difference between the mental capacity of the various human groups is afforded by the reasoning faculty, of which articulate speech is at once the measure and the outward expression. But this special characteristic of man, in virtue of which he stands entirely apart from and immeasurably above all other creatures, has hitherto had the misfortune of suffering from friend and foe alike; over-zealous philologists ranking it much too high, anthropologists depreciating it to a corresponding extent. Thus while the latter too often decline to recognise its claim to consideration in ethnological studies, many of the former go so far as to assert with Horatio Hale that language is the true basis of anthropology, that by their speech alone the tribes of men can be scientifically classified, their affiliations determined, and their mental qualities discerned; hence the logical inference that linguistic anthropology is "the only Science of Man[1]."

Relation of speech to Anthropology.

But apart from such extravagant assumptions, even the purely anthropological student must recognise the importance of this faculty, when it is pointed out that different phonetic systems imply greater or less differences in the anatomical structure of the vocal organs.

Phonesis a physical function.

Owing to such differences Europeans, for instance, find it impossible, after years of residence amongst the natives, to pronounce the various clicks of the Bushman, Hottentot and Kafir tongues, the splutterings and other harsh sounds of the Thlinkít, Chinúk (not the jargon), Apache and some other American idioms, the gutturals (ع, غ, ح, خ, ق) of the Semitic group, and so on. The "absolute impossibility" of imitating certain utterances in some of the New Guinea languages is by Miklukho Maclay rightly attributed to "fundamental differences in the anatomical structure of the larynx and

[1] *Language as a Test of Mental Capacity*, in *Transactions of the Royal Society of Canada*, 1891.

the whole muscular system of the organs of speech in the two races" [European and Papuan]; he adds that "not only the organ of speech but also that of hearing plays an important part, for the same word may be heard in a totally different manner by different individuals[1]." The new school of phonetics associated with the names of Ellis, Bell, Sweet, Jespersen, Paris and others, is entitled to look for aid on these points from special anthropologists, who on this ground alone cannot afford to neglect linguistic studies. They should be able to tell us, why the plantation negroes, whose mother tongues have for several generations been English, French, Spanish or Portuguese, still continue to speak these languages barbarously, why the same languages continue to be a "shibboleth" to the Jews resident for hundreds of years amid the European populations, and why no Ephraimite could frame to pronounce this very word right, whence

> "so many died,
> Without reprieve adjudg'd to death
> For want of well pronouncing *shibboleth*."
> *Samson Agonistes.*

But if the anthropologist has no time to take heed of these things, he should at least understand that they possess no slight racial value. Phonesis, now recognised as the true basis of all philological studies, "belongs almost exclusively to the physiological characters of race[2]."

Value of language to the ethnologist.

In any case the evolutionist, who regards articulate speech as a natural phenomenon, will not hesitate to recognise its value in ethnological studies. The faculty itself, proper to all the Hominidæ, and to them only, would alone suffice to separate them as a distinct family from the other anthropoids. As soon as the term *alalus* drops out of Haeckel's definition of man's precursor, we get the *homo primigenius* himself, the origin of the human race being coincident with

[1] *Ethnologische Bemerkungen über Papuas der Maclay Küste*, quoted by J. C. Galton, *Nature*, Jan. 1, 1880.

[2] T. de Lacouperie, *Academy*, Sept. 4, 1886, p. 156. Prof. H. Schuchardt goes further, and boldly asserts that "there is no more difference between biology and philology than between biology and chemistry" (*Literaturblatt für Ger. u. Rom. Philologie*, 1892); this also on physiological grounds.

that of speech. "If it is language that constitutes man, then our first progenitors were not real human beings, and did not become such till language was formed in virtue of the development of the brain and of the organs of speech" (Schleicher).

For the evolutionist, who necessarily traces man back to a speechless precursor, speech is a function which perfects itself hand in hand with the growth of the organ (p. 41). Hence the faculty starts from a germ, and its history is one of continuous upward evolution from slowly accumulating crude utterances. Such utterances, vague at first in sound and sense, are to be regarded as the imperfect expression of inward emotion and feelings, of outward things and actions, differing from the accompanying gesture-language only in this, that the one appeals to the sense of vision, the other to that of hearing. Primitive man, always a social being congregating in family groups, expressed his thoughts by speech and gesture, and as speech expanded with the infinite capabilities of the vocal organs, gesture fell more and more into abeyance, now surviving only amongst the lower and some of the more emotional higher races (American aborigines, Neapolitans).

Evolution of Speech.

The first utterances, like those of the higher apes, were doubtless mere jabberings[1], scarcely more distinct and varied than the present language of man's companion, the dog, who, a howler in the wild state, has learnt in domesticity to bark diversely, to yell, yelp, growl, snarl, whine, whimper, moan, or bay[2]. So with

[1] Prof. R. L. Garner's recent experiments have not convinced us that "monkeys talk, the power of expression being commensurate with that of thought." This is the error into which Max Müller and other Hegelians have fallen. Thought (reason) and language are not convertible terms, and it is conceivable that even the *homo alalus* might have arrived at a considerable degree of culture by the aid of gesture language, ejaculations, an upright position and specialised hands and feet. In any case a varying range of thought cannot be denied to the speechless ape and other dumb creatures. "Man does not speak because he thinks. He speaks because the mouth and larynx communicate with the third frontal convolution of the brain. This material connection is the immediate cause of articulate speech" (André Lefèvre, *Race and Language*, 1894, p. 3).

[2] "La domestication supprime les inquiétudes de la faim, et donne des loisirs au système nerveux. L'idéation augmente, et s'extériorise par une modification de l'appareil phoneteur" (Houzé, *loc. cit.* p. 135).

our pliocene precursor's cry, which is rightly regarded by André Lefèvre as "the undoubted embryo of speech[1]." With the growing needs of society it could not fail to develop by various processes—mimesis, reduplication, repetition, stress, prolongation of vocalic sound[2]—sufficient raw material for the constitution of the *inorganic* or first phase of human speech, which may well have been reached in eolithic times. At least the Tasmanian, practically at the eolithic stage of culture, spoke a tolerably developed language, which had fully passed beyond the inorganic[3] to the early *organic*[3] phase.

That this marvellous evolution occurred more than once in a few independent centres is conceivable, but improbable, and it has been seen in Chap. VII. that the existence of radically distinct stock languages is no argument for a multiple origin of human speech. All the conditions seem best accounted for by the assumption of a single centre of evolution, coincident in time and place with the evolution of man himself. The faculty once acquired would thus have accompanied man in all his migrations over the globe; it was never lost, and all members of the family, however debased, are found in full possession of this priceless heirloom. Had the faculty risen independently in several centres, this need not, probably would not, have been the case. Some tribes, migrating from the common centre to unfavourable regions, or surrounded by unfavourable conditions of existence, might well have remained

[1] *Op. cit.* p. 22.

[2] Rival schools have advocated now one now another of these processes, which have thus been brought into ridicule and stigmatised as the "bow-wow," the "pooh-pooh" or other theories. But all have in varying proportions contributed towards the formation of language, and some (reduplication) have entered into the very structure of the highest forms of speech. The past tenses of all our English "strong verbs" are due to reduplication.

[3] These terms are here used merely in the sense of *coherent, incoherent; organised, unorganised*, and not as used by A. W. Schlegel and the host of German metaphysical philologists, who, despite Pott's protests, still persist in speaking of language as, not merely figuratively, but actually an organism, a concrete substance existing, growing, flourishing and decaying independently of the human organism. Articulate speech should rather be likened to the notes emitted by musical instruments of varying degrees of perfection. Heyse (quoted by Sayce) calls language "the music of the soul," though in a sense different from that here implied.

speechless, or the faculty might have been arrested at various low stages of the inorganic phase. But no such speechless or semi-speechless tribes have ever been discovered, so that the universal diffusion of the faculty is itself an argument in favour of its dispersion from a single centre. Or let us suppose hundreds of speechless groups scattered over the primæval woodlands. The odds are that some of them will remain in that state, for evolution, even granting the *conditio sine quâ non*, is not a necessity. Nowhere are the conditions more favourable for wheat-growing than in California; yet not an ear ever ripened in that region till the seed was planted by the discoverers. *Möglichkeit*, say the Germans, *ist nicht Notwendigkeit.*

Reply to the linguistic Polygenists.

But it may be argued that the alaloi may have existed, but were either killed off by the speaking tribes, better equipped for the struggle, or else learned to speak from them. But if killed off, we are not concerned with them, any more than with the Homo alalus himself, common precursor of the assumed speechless and speaking tribes. That they could not have learnt to speak is obvious from the fact that the faculty, as explained, is of slow growth, its development going on simultaneously with that of the vocal organs.

Speech of relatively recent growth.

Again it may be urged that languages differ specifically and even generically from one another; hence must have had independent centres of origin. This point has been referred to in Chap. VII.; but as it is the source of endless misconceptions in ethnology, it will be desirable here to dispose of it once for all. In his assumed speechless precursor man has physically a real starting point. From that precursor he ascends directly, and owing to the persistence of physical characters has, relatively speaking, diverged little from that prototype. But with language the case is entirely different. Its starting-point was not, and could not be a fully developed prototype, but only a germ, that is, such inarticulate utterances as may have been inherited from the precursor. Physically man goes back through imperceptible transitions to the lower animal series; linguistically he goes back no farther than the Homo alalus. Hence speech, as compared with physique, is an entirely new feature of relatively recent growth. Now all new features are at first incon-

stant, pliable, unstable, until permanently fixed. Compare the tendency of new varieties of the pigeon or geranium to sport and revert. Renan well remarks that "linguistic families apparently isolated could have had fruitful contacts at times when they were still capable of being re-cast. In speaking of languages, we cannot too carefully distinguish the embryonic state, during which accidents harmless in riper age may have had vital consequences, from the perfect state, when they are fixed, as it were, in a definite mould[1]."

Hence at first unstable.

It was during this "embryonic state," which is here called the *inorganic phase*, that, as the stuttering groups spread abroad from a common centre, their speech, such as it was, rapidly diverged, and broke readily into numerous varieties. Then these varieties, following each its inward bent, gradually acquired greater consistency and firmness. They grew from varieties into species and genera, while the speakers have continued to remain mere physical varieties to the present time. Hence it is that within the same physical group, the Caucasic, for instance, we find several linguistic groups differing generically (Aryan, Semitic, Georgian, Chechenz, Basque &c.). This phenomenon, which has been the cause of such wonder and of so many delusions, thus appears simple enough, and indeed inevitable, when we but reflect that, *cæteris paribus*, linguistic change far more rapidly than physical types. But these changes have been in progress since pleistocene times, when the groups of speaking Hominidæ were already spread over the face of the globe. Consequently the divergence is now too great to trace the linguistic groups back to their primordial inorganic condition. A primordial organic condition could never have existed for all the Hominidæ, who carried with them from the centre of dispersion nothing but a common stock of incoherent utterances. It follows that a common language of organic type is a chimæra which will always elude the grasp of linguistic monogenists.

Hence also another curious result, of paramount importance in the study of linguistic and ethnical groups. The human groups, being mere varieties, all amalgamate with each other; but the

[1] *L'Origine des langues*, p. 212.

linguistic groups, forming species and genera, never amalgamate, but on the contrary are mutually repellent. There is no such phenomenon as linguistic miscegenation, no change of inner structure by any amount of contact, but only word-borrowing, and the words so borrowed have all to conform to the genius of the languages into which they are accepted. There are many mixed races; indeed, as seen, all races are mixed; but there are no mixed languages, that is, mixed in the sense here explained.

No mixed languages.

The so-called jargons—Chinúk, Pigeon-English, the "Slavo-Deutsches" and "Slavo-Italisches" of Prof. Schuchardt[1], and so on, are not mixed languages, but rather mixed vocabularies with little trace of the grammatical forms of the idioms from which the words are brought together and gradually organised on a fresh basis. An attempt has been made by Mr J. C. Clough to prove the existence of mixed languages in a "prize essay" which rather proves their non-existence. The writer relies mainly on sound and vocabulary, which are not in dispute, while his references to grammar are highly uncritical[2]. English, if any, might be called a mixed language; but its grammar is purely Teutonic, and while it has embodied thousands of Latin and French words, it has not embodied a single Latin or French grammatical form. So with Hindustani, Persian, Turkish, and all the other so-called "mixed languages," none of which are mixed in their inner mechanism. "Never has the grammatical structure of a language accommodated itself to a new one, but rather the whole language has disappeared, and has been supplanted by the new one; for such a change in the structure of a language would presuppose a transformation of ideas and the mode of connecting the elements of thought which we deem next to impossible[3]."

[1] Gratz, 1885.

[2] *The Existence of Mixed Languages*, &c., 1876. The uncritical character of this essay appears from such statements as that at p. 7, where the Romance tongues are stated to have been "once nothing more than jargons of various Gothic and Latin dialects"; that English Grammar "has become Romance in spirit" (p. 95); and that the transposed Hindustani form *jútí mard ki* for *mard ki jútí* is "according to the Persian order" (p. 18).

[3] Waitz, *op. cit.* p. 248.

Consequent value of speech as a Racial test.

From this "kakogenesis" of speech, taken in connection with the "eugenesis" of races, there follow some important inferences. Arguing from the universal miscegenation in Hungary, Schwiker concludes that "speech remains the most conspicuous distinctive indication of European affinities[1]." De Quatrefages points out that "had it not been for their special language no one would have hesitated to consider the Basques as belonging to the same family as other southern Europeans[2]." Sayce also observes that "the physiological races of the modern world are far more mixed than the languages they speak; the physiologist has much more difficulty in distinguishing his races than has the glottologist in distinguishing his families of speech[3]." Thus we have in Europe mixed Keltiberian peoples, but no mixed Keltiberian languages; Finno-Slavs, Slavo-Teutons, Kelto-Teutons, but no Finno-Slav, Slavo-Teutonic or Kelto-Teutonic tongues. The inferior, and sometimes even the superior races, have in all cases abandoned their mother tongue, while adopting, without seriously modifying, that of the conquerors or conquered, as the case may be. Within two generations the victorious Northmen of the Seine valley forgot their Norse speech and adopted the Romance of their Gallic subjects. These Gauls themselves had, on the other hand, previously changed their old Keltic speech for the Latin of their Roman masters. In this region of Northern France there have thus arisen racial complexities of all sorts, but never any permanent linguistic confusion, one language simply displacing another without producing any hybrid forms of speech, which, if they exist at all, are certainly the rarest of philological phenomena. The Basques of Navarra are at present slowly giving up their old Escuara tongue for Spanish, but they do not blend the two into some new Hispano-Basque variety. So with the Pruczi, or "Old Prussians" of Lithuanian speech, the nearly extinct Wendish Polabs, the Ugric Bulgarians, many Permian Finns, Kelts of Cumberland, Cornwall, and Ireland, all or most of whom have been assimilated in speech to the surrounding Slav and Teutonic populations. The same

[1] *Statistik des Königreichs Ungarn*, Stuttgart, 1877, p. 148.

[2] *The Human Species*, 1879, p. 434.

[3] *Science of Language*, I. p. 366.

process is at present going on amongst the Finnish Vepses of Lakes Onega and Ladoga, who are becoming rapidly Russified in speech while retaining their distinctive physical features[1]."

Table of mixed peoples speaking unmixed languages.

This important subject may be further illustrated by the subjoined table of some of the chief European peoples, showing that all belong ethnically to mixed groups, but linguistically to unmixed families :—

Peoples.	*Ethnical Group.*	*Linguistic Family.*
English; Scotch	Kelto-Teutonic	Teutonic
Cornish	Siluro-Kelto-Teutonic	Teutonic
Welsh	,, ,, ,,	Keltic
Irish (West)	,, ,, ,,	Keltic
French	Ibero-Kelto-Teutonic	Italic
Spaniards	Ibero-Keltic	Italic
Germans	Slavo-Kelto-Teutonic	Teutonic
Bohemians	Kelto-Teuto-Slavonic	Slavonic
Russians (many)	Finno-Slavonic	Slavonic
Bulgarians	Ugro-Slavonic	Slavonic
Hungarians (Magyars)	Ugro-Teuto-Slavonic	Finnic
Prussians (East)	Letto-Teuto-Slavonic	Teutonic
Rumanians	Italo-Slavo-Illyric	Italic
Italians	Liguro-Kelto-Italic	Italic.

Here we have no compound terms, i.e. mixed elements, in the linguistic column, while in the ethnical all the terms are compound. Moreover, there is no doubt at all as to the linguistic terms, whereas the ethnical are largely conjectural, or merely symbols (Silurian, for instance) of unknown elements. It is this consideration that to some extent justifies the remark of Waitz that "for the classification of mankind philological research has given much more certain and harmonious results than the physical study of man[2]." But a little reflection will show that too blind a trust in philology may lead to as erroneous results as too blind a trust in craniology

[1] "Les Vepses disparaissent en prenant la langue russe, mais ils se conservent fort bien au point de vue anthropologique" (Ch. de Ujfalvy, *Bul. d. l. Soc. de Géogr.* Paris, 1877, p. 320).

[2] *Anthropologie der Naturvölker*, part I. sect. 5.

or in other physical characters. A language, for instance, may in the struggle for existence get killed off, although the people speaking it may escape the same fate. Countless instances may have occurred in past ages, many have occurred within the historic period, of such linguistic shiftings. Subjoined are a few instances of communities which are known to have changed their languages in comparatively recent times :—

Table of peoples whose speech has shifted without mixing.

People.	*Original Speech.*	*Present Speech.*
Cornish	Keltic	Teutonic
Irish (many)	Keltic	Teutonic
East Prussians	Lithuanian	Teutonic
Bulgarians	Ugrian	Slavonic
Bashkirs	Finnic	Turki
Gauls	Keltic	Italic
Normans	Teutonic	Italic
Etruscans	Non-Italic (?)	Italic
Hazaras; Aimaks	Mongolic	Persian
Polabs (most)	Slavonic	Teutonic
Burgundians, Franks, Lombards	Teutonic	Italic
Permians (many)	Finnic	Slavonic
Basques of Vitoria	Iberic	Italic
Bretons (many)	Keltic	Italic
Talaings (many)	Mon	Burmese
Ahoms	Shan	Assamese
Samangs (many)	Negrito	Malay
Griquas (many)	Hottentot	Dutch
Negroes of America	Bantu, Yoruba, &c.	Teutonic, Italic
Negroes of Madagascar	Bantu	Malagasy.

On the other hand cases may arise of the reverse process, that is, of peoples gradually changing their physical type, while retaining their original speech. Such instances would not affect the truth of the general statement that physique is more persistent than language, because the change would be mainly due to miscegenation, a most potent factor in modifying physical, but, as

seen, powerless to modify linguistic types. The change in question would be likely to occur when conquering or intruding races find themselves strong enough to maintain their political and social supremacy, but numerically too weak to prevent fusion and assimilation with the subject peoples. Subjoined are some of the most conspicuous instances, for which there is either linguistic or direct historical evidence :—

Table of peoples whose physical type has changed, their speech persisting.

Race.	*Original Type.*	*Present Type.*	*Speech (unchanged).*
Western Turks	Mongolic	Caucasic	Mongolic
Magyars	Mongolic	Caucasic	Mongolic
Finns (many)	Mongolic	Caucasic	Mongolic
Basques	Non-Aryan	Aryan	Non-Aryan
Berbers (many)	Hamitic	Semitic	Hamitic
Abyssinians (some)	Semitic	Negroid	Semitic
Tibus (some)	Hamitic	Negroid	Hamitic (?)
Germans of Caucasus	Teutonic	Georgian	Teutonic.

The last instance is most remarkable, and well deserves the consideration of those anthropologists who attach but little importance to the influence of the environment, and still less to the value of speech as an aid to the ethnologist. The Germans in question, a few hundred Wurtembergers, who settled (1816) at Yelisavethpol near Tiflis, had originally fair or red hair, light or blue eyes and broad coarse features. In the first generation brown hair and black eyes began to appear, in the second black eyes and hair became the rule, while the face acquired a noble oval form, and these changes were due entirely to the surroundings, no instance of crossings with Georgian natives being on record. At the same time these transformed Wurtemburgers continue to speak their German mother-tongue uninfluenced by the local dialects[1].

[1] Il paraît que dans l'espace de deux générations les colons suabes ont changé physiquement d'une manière remarquable sous l'influence du milieu. Quoiqu'il n'y ait point eu de croisement entre eux et leurs voisins, la plupart ont maintenant la chevelure foncée, les yeux noirs, la figure ovale et régulière, la taille élégante et souple. Ils ne ressemblent plus à leurs cousins restés dans la mère-patrie" (Reclus, VI. p. 225).

Hence speech and race not convertible terms.

From these tables, establishing an apparent antagonism between speech and race, it follows that, as Prof. Sayce rightly remarks, "philology and ethnology are not convertible terms[1]." But this writer goes too far, much too far, when he adds that "identity or relationship of language can prove nothing more than social contact....Language is an aid to the historian, not to the ethnologist....Language in short was not created until the several types of race had been fully fixed and determined. The xanthochroid and the melanochroid, the white albino and the American copperskin existed with their features already fixed and enduring before the first community evolved the infantile language of mankind" (*ib.*). Prof. Max Müller cannot approve of this view, because it summarily disposes of his contention that speech and reason are one. It is not to be supposed that groups of speechless Hominidæ could become highly specialised as *Homo Caucasicus* ("xanthochroid and melanochroid"), *Homo Americanus* &c., without a liberal endowment of reason[2], which would thus have existed for ages without the faculty of speech.

But the view must be rejected on other grounds, and the last highly gratuitous assertion has in fact already been disposed of (pp. 196–7). The statement that language proves social contact only and is no aid to the ethnologist, implies a fundamental misconception of the correlation of speech to race. Cases may and do arise, where language will infallibly prove the presence of distinct ethnical elements, which, but for it, would never have even been suspected, much less determined. In Europe a case in point are the Basques, shown by their speech to be at least partly descended from a pre-Aryan or a non-Aryan race, which has elsewhere apparently disappeared, but which has far more probably become amalgamated with the intruding Aryan peoples. Thus from the Basque language we learn to be cautious

But speech often a great aid in determining ethnical elements.

[1] *Science of Language*, II. p. 317.

[2] It would need, for instance, a considerable degree of intelligence for the speechless successors of *Homo neanderthalensis* (still of somewhat Simian type) to build the neolithic monuments of Mauritania, Brittany and Britain, or even to fashion the delicate palæoliths of the Solutrian period. Ethnological speculation cannot be safely indulged in from the subjective standpoint.

in speaking of the peoples of West Europe as of "pure Aryan stock." Moreover, if the late G. von der Gabelenz be right, the Basque language, connected by him with the Berber, supplies the clue to the identification of the non-Aryan element, which would thus appear to be African Hamite[1]. So with the Finns, whose Uralo-Altaic speech reveals the Mongolic ethnical element, which could otherwise be only suspected in their physical constitution; and so with the Magyars, in whom but for their Finno-Tatar idiom that element would not be suspected at all, so "Aryanised" are they. A Malay element in the Negroid peoples of Madagascar is placed beyond doubt by their Malayo-Polynesian dialects. Or are we to suppose that, by crossing from the mainland to the neighbouring island, the Mozambique Bantus forgot their mother-tongue, and began to speak Malay somehow wafted with the trade-winds from Malaysia across the Indian Ocean to Madagascar? Language used with judgment is thus seen to be a great aid to the ethnologist in determining racial affinities, and in solving many anthropological difficulties.

The morphological orders of speech.

It would even appear that the great divisions of speech correspond, at least to a limited extent, with the great divisions of mankind. Languages are by most philologists grouped according to their morphological structure in four main classes or orders, which are distributed amongst the main branches of the human family as under:—

AGGLUTINATING: { Most Negroid peoples. / All Mongols, Tatars, and Finns. / Malays and Polynesians. / Some Caucasic peoples.

POLYSYNTHETIC: Most American Aborigines.

INFLECTING: Most Caucasic peoples.

ISOLATING: Indo-Chinese and Tibetans.

Here it will be noticed that the last three answer fairly well to so many distinct sections of mankind, while the first alone comprises several different groups, the reason being because agglutination itself is not of one kind, as is often supposed, but of many

[1] *Die Verwandtschaft des Baskischen mit den Berbersprachen Nord-Afrikas nachgewiesen*, Brunswick, 1894.

types. All four belong to the *organic* phase of speech, from which it follows that all known tongues, having in prehistoric times passed through the *inorganic* state, have, so to say, already completed their natural evolution, at least to the same extent that the Hominidæ themselves have completed their natural evolution. It is commonly assumed by philologists that for language this evolution consists of passing successively through the lower to the higher of the above specified morphological states, the isolating and inflecting being taken as respectively the two extremes, in the ascending order, of this assumed linguistic gamut. Opinions vary greatly as to how the complete process is accomplished, and owing to the difficulties involved in the application of this cut and dry theory, its correctness has in recent years been seriously questioned. But most philologists have till recently accepted the views of Grimm and Schleicher, according to which the inflecting state was reached through the agglutinating from the isolating, this last consisting of detached "roots," such as those yielded by the analysis of the Aryan tongues. These roots being monosyllables, it was naturally inferred that the Indo-Chinese family, consisting also mainly of monosyllables, must represent the most primitive condition of human speech. Thus were established two fallacies, one that primæval speech consisted of a monosyllabic root-language, the other that Indo-Chinese is still in that primitive state. The first fallacy is now exploded, and it is generally understood that monosyllabism is not a necessary condition of primitive speech, Sayce amongst others holding that, on the contrary, the sentence was the necessary starting-point. Rightly understood, this position is impregnable, for the object of speech must always have been to communicate thought, and the definition of the sentence is, not a number of abstractions called roots thrown together anyhow, but a number of terms so arranged as to convey a concept, to communicate thought. But this may be done by a single ejaculation such as *hush!* or *whist!* and the first sentences could not have been much more complicated than such utterances, the full meaning being, where necessary, eked out with the aid of gesture language, as still in Grebo (West Coast of Africa) and some other savage tongues.

Old views of linguistic growth.

Monosyllabism not the first but the last stage of growth.

"This complex of sound and gesture...was the earliest sentence[1]," in which the question of monosyllabism does not enter.

The second fallacy still persists, and most philologists continue to regard the Indo-Chinese languages as in a primitive state of monosyllabism from which they have never emerged. Yet their original polysyllabic character, already dimly seen by Edkins and de Rosny, has now been placed beyond doubt by the researches of the late Terrien de Lacouperie. Edkins was able to trace *ta*, great, back to a fuller form *dap; yi*, one, to *tit; tsie* through *tsit* to *tsik*, a joint, and so on[2]. But de Lacouperie went further, and recovered not merely monosyllabic but trisyllabic forms, such as *tadaka*, to doubt, now worn down to *i*[3]. This view is accepted by Mr Robert K. Douglas, one of the first living Sinologists, who writes: "I quite agree with the opinion expressed by the late Dr T. de Lacouperie, that the present monosyllabism of Chinese, instead of being evidence in support of the theory that in their earliest stage all languages were monosyllabic, is another proof of the existence of phonetic decay in this and in other tongues. When we trace back Chinese to its earliest recognised form in Akkadian, we see unmistakable evidence of the same kind of phonetic decay. Thus:

The monosyllabic languages originally polysyllabic.

Chinese the result of Phonetic Decay.

Akkadian.	*Chinese.*	*English.*
Gush-kin	Kin	Gold
Ukush	Kut, Kwa	Gourd
Kur-fi	Ki	A fowl
Inim	Nien, Nim	To recite
Garshan	Shan	Mountain
Billudu	Lut, Lü	A statute
Guk-kal	Ku	A sheep
Guk-kud	Kit, Kie	A wether
Ukkin	Kien	All
Dim-menna	Mên, Wên	Inscription[4]."

[1] Sayce, *op. cit.* I. p. 116.

[2] *Introduction to the Study of the Chinese Characters*, 1876.

[3] Note communicated to A. H. Keane, and published in his *Asia* (Stanford Series), 1882, p. 700.

[4] MS. note communicated to A. H. Keane, Oct. 29, 1894. The Akkadian words supplied by the Rev. C. J. Ball.

But the same process had already made considerable ravages thousands of years ago in Akkadian itself, in which the monosyllable *gê*, for instance, has been traced by Mr T. G. Pinches to twelve originally distinct words, such as *get*, root, *gên*, seed, *gig*, night, *geme*, like, *gi-num*, fire, *gin*, shekel, *gis*, one[1]. Similar tendencies are at work in other groups, such as Tibetan, Danish, English (most monosyllabic of all Aryan tongues), Otomi of Mexico, and especially Yoruba, Tshi, Ewe, and other allied idioms of Upper Guinea, where, as in Indo-China, the numerous homophones representing originally distinct terms are now distinguished by their different tones.

The Aryan Root Theory exploded.

Monosyllabism is thus shown to be, not the first but the last stage in the evolution of human speech, and the numerous theories based by Bopp, Schleicher and others on the assumed original monosyllabic state of the "Aryan roots" all fall to the ground. All the facts tend to the conclusion that primitive speech was not monosyllabic or isolated, but on the contrary *involved*, after it had passed the inorganic phase, and it may be regarded as certain that at no time did man ever speak in "monosyllabic roots." A root is a pure abstraction, the residuum of a term stripped of its formative elements, comparable to the atom of physicists, not exactly a fiction, but an ultimate particle of matter, which eludes the keenest analysis, and which has no independent existence in the cosmos. But as the atom unites with one or more atoms to form the molecule, so the root unites with one or more roots to form the sentence, the unit of speech. The combination, however, is much closer in the physical than in the linguistic order; hence the chemical union of parts in the molecule is represented by the much looser agglutinative process, which is thus seen to constitute the first stage in the organic condition of speech. Roots, therefore, whether mono- or polysyllabic, must be relegated with the atom to the ante-cosmos, and agglutination of some form taken as the primary condition, the first morphological state of all organic languages, which either remain in that state, or else pass on to the three other above specified morphological orders.

[1] *Observations on the Early Languages of Mesopotamia*, paper read before the R. Asiat. Soc., March 17, 1886.

The character of the several orders is determined by the way in which the relational combine with the notional elements. The relational were themselves doubtless originally notional, as it is almost impossible to imagine the deliberate invention, except perhaps later by analogy, of meaningless particles, such as the Turkish *mak*, *lar*, *mi*, *me*, or the Aryan *in*, *un*, *ab*, *ex*, introduced for the purpose of expressing in combination the various relations of the notional words. But these particles were unsuited to enter into true combination until they had gradually ceased to become notional, and until they had at the same time been reduced by phonetic decay to convenient adaptive forms. When they are merely tacked or *glued*, as it were, on to the notional words, language enters the *agglutinating*, i.e. the first strictly morphological state, of which there are divers kinds and grades, according to the various ways and degrees of combination. But, in general, the true test of agglutination is the power of the particles to become detached and shift their places in the combined form, as when *ly* in the English word *manly* makes room for *ful* in *man-ful-ly*; so the Turkish *sev-mek*, *sev-il-mek*, *sev-il-me-mek*, &c.; and the Assamese *manuh-bilak-or*, *of-the-men* (plural *bilak* inserted between noun *manuh* and its gen. case-ending *or*). A vast number of languages are of this agglutinating order, from which all the others have emerged in diverse directions[1], although this evolution of speech has been denied by Sayce and some other reactionists against the old theory of root origin. Thus Sayce speaks of "the magical frontier between flection and agglutination," which can never be "cleared," "since to pass from agglutination to inflexion is to revolutionise the whole system of thought and language and the basis on which it rests, and to break with the past psychological history and tendencies of a speech," (*ib.* I. p. 131). Nevertheless this break with the past has been made, and as Prof. Jespersen shrewdly remarks, "revolutions do take place in the world of languages,

Agglutination.

The morphological orders, transitional phases of growth.

[1] "So far as verified facts in linguistic history go, all outward devices of derivation and accidence grew out of agglutination, that is, by adding originally independent [notional] words" (G. v. d. Gabelentz, *die Sprachwissenschaft*, 1891, p. 189).

even if they take more time than it takes the French to change their constitutions. If a thousand years suffice to change a type of speech like that of King Alfred into the totally different one of Queen Victoria, then the much longer period which palæontologists and zoologists accord to mankind on this earth could work still greater wonders....Sayce stands, with regard to these three or four types of speech, in much the same attitude which naturalists kept with regard to the notion of 'species' before Darwin came[1]." It is argued that the transition from a significative term to a formative element is an unknown, or at least an extremely rare phenomenon, because but few particles in current languages have been traced back to notional words, so that most of them must be accepted as "meaningless affixes" from the first[2]. Not so! This is rather a case in which it may safely be argued from the few to the many, for the process, so far from being a "rare phenomenon," is normal in most languages, though arrested by various causes in cultivated idioms. The above examples from English and Assamese show that reversions may take place from inflection to agglutination, which in fact is a general tendency amongst the Gaurian (Neo-Sanskritic) tongues of India, and also to a less extent in Italian and other Neo-Latin tongues. Thus Italian incorporates both direct and indirect pronominal object, as in *da(m)-mi-lo* = give-to-me-it (sing.); *date-me-lo* = give-to-me-it (plur.); *dando-me-lo* = giving-to-me-it (pres. part.). In the same way the whole of the Hindi conjugation except a solitary tense (the so-called "aorist") has become participial with *gender* and number but no *person*, as in so many

Inflection reverts to Agglutination.

[1] *Progress in Language*, 1894, p. 132.

[2] According to Ludwig's "adaptation theory," as soon as the relations of words to each other in the sentence got to be understood, "pre-existing suffixes," no doubt floating about in circumambient space, were set apart to determine them. Thus the Greeks captured the suffix ες, which in πόδ-εσ-σι and ποδ-έσ-ων (ποδῶν) has no grammatical meaning, but which came to symbolise the nom. pl. in πόδες and the 2nd pers. singular in ἔτυπες, being thus made to do duty for the plural in nouns and the singular in verbs. Thus also we are back in the old days, when speech was regarded as an elaboration of the conscious will, instead of being the result of unconscious cerebration acting through the vocal organs, as it had previously acted through the facial muscles, say, in the miocene precursor.

agglutinating systems. Similarly vernacular Bengali is now mainly agglutinating, forming nominal cases, number, and gender by juxtaposed nouns, the case-endings themselves being the same for singular and plural, while conjugation is effected by verbal nouns, or participles and auxiliaries. "In a word the whole language tends to become reduced to nouns, joined together to express declension and conjugation[1]." What is happening so generally during the process of disintegration (synthesis to analysis) must have taken place universally during the process of integration in the pre-inflecting agglutinative stage of linguistic evolution.

Agglutination passes into Inflection and Polysynthesis.

From that stage language developed, according to its different initial tendencies, in various directions towards complete decomposition, as in the above-described isolating state of the Indo-Chinese group; partial decomposition, as in the particle languages of the Malayo-Polynesian group; polysynthesis, as in most of the American groups; and synthesis, as in the inflecting Aryan, Semitic and Hamitic groups. *Polysynthesis*, regarded by some philologists as a primitive condition of speech, is on the contrary the outcome of great phonetic corruption, syncope and clipping of words and particles, which become so fused together that the sentence often tends to assume the aspect of a single composite term. Its involved character has no doubt been greatly exaggerated by Duponceau[2], who introduced the word "polysynthetic," describing it as a process by which the greatest number of ideas are comprised in the least number of words. But the fact remains that in Iroquoian and other languages of this type "the stem of a verb or adjective may be combined with the stem of a noun[3]"; and thus arises practically unlimited participial conjugation, which is the essentially distinguishing feature of polysynthesis, as compared with all other incorporating systems. Basque,

Polysynthesis differs in kind from Agglutination.

[1] Ch. Johnston, *Paper read at the Oriental Congress*, Sept. 1891. See also *Asiatic Quarterly Review* for July 1892.

[2] *Mémoire sur le système grammatical de quelques nations indiennes de l'Amérique du Nord*, 1838, and in other writings.

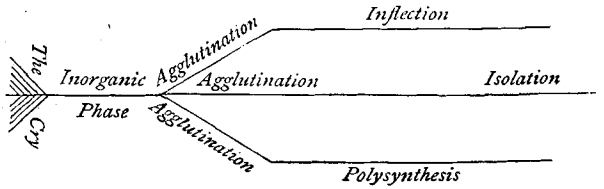
[3] J. N. B. Hewitt, *Polysynthesis in the Languages of the American Indians*, in *The American Anthropologist*, Oct. 1893, p. 387.

for instance, the most highly agglutinating tongue in the Old World, may run the changes through such a form as *I-giving-it-to-him*, stopping short at the direct and indirect pronominal objects; but Iroquoian introduces the noun as well, and inflects *I-giving-it-the-book-to-him*; and as the pronominal elements are few, the nominal innumerable, it is at once seen that agglutination and polysynthesis differ not merely in degree, as is often assumed, but also in kind. Fusion by syncope, however, which is only one aspect of polysynthesis, is a common phenomenon, as seen in the English *ha'porth* = half-penny-worth; the Mexican *teo-calle* = teotl-calli = God's-House (temple); the Vei (W. Coast of Africa) *nkúmbafówuye* = n-kumu m-be a fo wú-ye = I-tell-you-this; the Basque *arkume* = ardi-hume = sheep-little = lamb; the Spanish *hidalgo* = *hijo-de-algo* = son-of-somebody = noble; the French (as pronounced) kekcèxça = qu'est-ce que c'est que cela, and so on. But what is more or less exceptional elsewhere is normal in polysynthesis, which is thus seen to represent a very advanced state of development, in fact standing in this respect on the same level as inflection. In the inflecting (synthetic) order, as represented by the Aryan group, the so-called "monosyllabic root" is assumed to develop a "stem" (Lat. *am*, *am-a*), with which are fused one, two or more relational particles, so as to form one inseparable compound, such as the Lat. *am-a-b-u-nt-u-r*, where the cohesion is complete, and not loose, as in Turkish (see above).

Nature of Inflection.

Taking the more or less articulate cry as the starting-point, the various morphological orders of speech would thus appear to have been evolved from a primitive inorganic condition, through various types of agglutination, to polysynthesis, inflection and isolation, as in the subjoined diagram:—

Diagram of linguistic evolution.



This genesis of speech explains the reason why the later forms

possess some features common to the earlier stages through which they have passed. They resemble the higher orders in the Animal kingdom, whose embryonic life is an epitome of their past history. But in the Animal kingdom the evolution was not through all the four classes of fishes, reptiles, birds and mammals, but either from fishes through reptiles to birds, or from fishes through reptiles to mammals. So in the linguistic kingdom, the evolution was not through all four morphological orders, in single linear direction, but from the earlier agglutinating phases to inflection, isolation, and polysynthesis in parallel lines as above. Thus linguistic growth must be admitted, not only within each order, which Sayce allows, but also from order to order, which Sayce denies. If the evolution be eternally within each order, and if the transition from one order to another be impossible, then the orders themselves must be conceived as having come into existence independently as we now find them. For the evolutionist this would be like saying that the animal classes came into existence ready made, say, by creative force. The very difficulty which often presents itself of drawing a hard and fast line between the several orders is itself a proof that, *servatis servandis*, they may pass by imperceptible transitions one into the other. Thus Finnish and Tamil have developed agglutinating forms which are scarcely to be distinguished from true inflection, while Basque holds a somewhat intermediate position between agglutination, inflection and polysynthesis. It is the "ornithorhynchus" of the linguistic family, and to express this anomalous position W. von Humboldt classed it by itself as *einverleibend*, "incorporating." Hence these orders must be regarded as progressive phases, not as fixed linguistic species. And if it be objected that some languages have never got beyond the agglutinating state, the answer is that some animals have never got beyond the classes of fishes, or reptiles. But as they were subject to perpetual change in the past, so they are never at rest in the present. English amongst the inflecting tongues of the Old World has made vast strides towards monosyllabic isolation, as seen in such an expression as "town talk," where a noun becomes an adjective and a verb a noun without any change of form, but, as in Chinese,

Synthesis and Polysynthesis tend towards Monosyllabic Analysis.

by position alone. So in the New World polysynthesis is no longer universal, and Otomi amongst other formerly polysynthetic tongues has by constant wear and tear at last simulated the appearance of a monosyllabic isolating language[1], although one of its dialects (Mazahua) is still "decidedly polysynthetic[2]."

Change from pre- to post-positions.

But inflection may also tend towards true polysynthesis, as in Sanskrit, where the limits are not always observed between the word and the sentence. Thus in virtue of the euphonic rules of Sandhi a group of words may flow together, developing such a form as *trinairguṇatwamâpannairbadhyante*, rivalling in length the formidable compounds of Cherokee, Mexican and other American incorporating tongues. Hence the inevitable revolt against such monstrosities, which has resulted in the Neo-Sanskritic postfixing vernaculars. Thus the change from the prefixing to the postfixing principle, which some hold to be impossible, has actually taken place during the historic period within the Aryan group itself, just as in prehistoric times prepositions would appear to have been preceded by postpositions. Thus, such forms as *me-cum*, *te-cum*, *se-cum*, rare in Latin, are normal in the sister Umbrian of the Eugubine tables, where we have such constructions as *tertiam-a spantim = tertiam-ad libationem ; ocre-per Fisiu = colle-pro Fisio*, showing how the post- may have easily become prefixes and then separable prepositions[3]; so *tuta-per Ikuvina = civitate-pro Iguvina* (Eugubium, Gubbio) ; *fratus-per Attiiedies = fratribus-pro Attidiis ; asam-ad = ad aram ; spiniam-ad = ad mensam ; uvi-kum = cum ove ; esunek esunu anter = inter istud sacrificium*, &c. Compare also the Latin *urbem versus* with the Hindústáni *shahr-ki-ṭaraf-(meñ) = city-*

[1] "L'Othomi nous a tout l'air d'une langue primitivement incorporante, et qui, parvenue au dernier degré d'usure et de délabrement, a fini par prendre les allures d'une dialecte à juxtaposition" (Charancey, *Mélanges de Philologie et de Paléographie*, 1883, p. 80).

[2] A. S. Gatschet, *MS. note* communicated to A. H. Keane, Nov. 14, 1894. This great authority is also inclined to remove Kwakiutl, Ata'kapa, Isleta and others of the Tehua group, as well as the Chibcha of S. America, from the polysynthetic order. "The Chibcha is remarkably simple; it approaches monosyllabism, and shows *no incorporation*" (*MS. note*, Dec. 4, 1887).

[3] "Nous croyons que l'usage des postpositions a précédé celui des prépositions" (Michel Bréal, *Les Tables Eugubines*, 1875).

of-direction (*in*), where nouns are transformed to postpositions. When it is remembered that analogous transformations took place in the agglutinating Akkadian of Babylonia, it will be seen that inflection must not be rated too highly above agglutination, of which it is "merely a child[1]." Thus the transition from order to order is established for all periods and for all linguistic groups, and there is no natural division between the historic and prehistoric life of languages, as maintained by the Hegelian school of philology. Change, the universal law, is arrested only by the extinction of species.

Change the Universal law of all living speech.

In his progressive development as a social being man passes necessarily from the hunting and fishing to the pastoral and agricultural states. But these higher states are in all cases determined, not by race but by the outward conditions. In Africa the Negro is normally a husbandman, although in all other respects greatly inferior to his Arab neighbour, who, as a rule, is a herdsman. In the Upper Lena basin the Yakut domesticates the horse, in the Middle the reindeer, in the Lower the dog. The Tungus of North-east Siberia tills the land in the fertile Amúr basin, tends the herd farther north, hunts and fishes in still higher latitudes. The Arab is a nomad pastor on the steppe lands of Nejd, a good agriculturist in the rich, well-watered upper valleys of Yemen. In a word, peoples pass so obviously from one to another of these states, that they can in no way be accepted as distinctive characteristics of any race. They are the proper subject of ethnography and geography, rather than of ethnology in the stricter sense. Hence they are discarded by Dr E. Hahn, who substitutes six "Kulturformen" distributed, irrespective of race, throughout so many geographical areas over the surface of the globe[2], all existing side by side, and determined by the physical and climatic conditions of the several regions.

Social State.

[1] "Ueberhaupt darf man die Flexion, die, abgesehen von dem innern Lautwandel, nur ein Kind der Agglutination ist, nicht zu hoch, und die Agglutination nicht zu niedrig anschlagen" (Dr C. A. F. Mahn, *Denkmäler der baskischen Sprache*, 1857, p. xxiii).

[2] *Petermann's Mitteilungen*, January, 1892.

Usages poor Criteria of race.

The same remark also applies in great measure to the primitive condition of the family and tribe; to such institutions as polyandria, polygamy, monogamy, the matriarchal and patriarchal states, exogamy, endogamy, the totem systems, tattooing, cannibalism, and similar practices more or less common to all primitive communities. The investigation of such subjects, however interesting in itself, can throw little light on the origin and mutual relations of the fundamental divisions of the human family. They belong to the natural as distinguished from the recorded history of man, and come more specially within the province of the historian of the growth of human culture. W. Earl[1] remarks that in Malaysia the grades of civilisation depend rather on the physical conditions than on race. Near the sea and rivers the people become fishers and navigators, on the uplands tillers of the land, and so on, and the observation may be taken as of general application.

Religion.

So also with the various religious systems of mankind, even the most primitive of which betray evidence of growth from some still more primitive previous state. It is obvious that, apart from the question of direct revelation, with which we are not here concerned, all natural religions must have had their beginnings in the first faint awakenings of the reflective powers. As soon as man began to remember his dreams, and to take cognisance of himself in a dim way as something distinct from his surroundings, all natural phenomena must have presented themselves to him as the effects of causes beyond his control and comprehension. With the growth of the reasoning faculties, comparisons would be instinctively made between such phenomena and those dependent on his own will. Thus the human powers and passions became the standards to which all things were referred, and instead of man being fashioned to the likeness of his deities, his deities or demons were rather fashioned to the likeness of man[2]. Hence the good and evil spirits take the complexion of the times, reflect the social status of the community; to their

[1] *Native Races of the Indian Archipelago*, p. 235.

[2] Hence J. P. Richter's remark that "minder der Mensch nach Gottes Bilde geschaffen sei, als dass er sich seinen Gott nach *seinem* Bilde zu schaffen pflege" (quoted by Carus, *op. cit.* p. 94).

friendly or hostile feelings are attributed all favourable or adverse events. All nature is filled with such invisible agencies, which move about freely, as man moves freely in his dreams, and which have to be propitiated or enlisted in his service by offerings and other devices. Some are the spirits of the mountain, the forest, the storm or the flood, some the spirits of departed men themselves; whence nature and ancestry worship. Such must have been the beginning of the anthropomorphism which is the essence of all primitive, and of many later religions.

Anthropomorphism due to the common psychic character of man.

Whether this anthropomorphic state was reached before or after the first dispersion of the human family could matter little. The conditions being everywhere alike or analogous, the evolution of this early phase of natural religion must have everywhere proceeded along the same lines of thought. Whether developed in a common centre, or in several independent centres, the religious sentiment would still present but slight shades of difference, such as might arise, for instance, from the differences between the manifestations of the natural forces in hot, cold, dry or moist climates, in high or low latitudes, in mountainous or forest regions. The sun, naturally regarded as a supreme agent in tropical lands, might be replaced by the moon under more temperate climes, and it is noteworthy that the gender of sun and moon, respectively masculine and feminine in the south of Europe (*sol*, *luna*) is reversed in the north (A. S. *sunne*, *móna*). In the same way night becomes the measure of time with the Teutonic, day with the Italic peoples. But apart from such easily explained discrepancies, the early religions, growing out of a common anthropomorphism into all shades of fetishism and shamanism, would everywhere present substantially the same general features; hence could nowhere serve as distinctive marks of the primary human groups.

Common religious ideas no proof of common origin.

It is further to be noticed that religious ideas, like social usages, are easily transmitted from tribe to tribe, from race to race. Hence resemblances in this order, where they arise, must rank very low as ethnical tests. If not the product of a common cerebral structure, they can prove little beyond social contact in

remote or later times. A case in point is the remarkable parallelism between the four great scenes of the Buddhist purgatory depicted on the Japanese temple scrolls, and the corresponding scenes on the road to spirit-land depicted in the Aztec Vatican codex:—

Buddhist Purgatory.	*Aztec journey to Spirit-land.*
1. Soul wades across the river of death.	1. Soul crosses the river of death.
2. Passes between two iron mountains pushed together by demons.	2. Passes between two mountains that clash together.
3. Climbs mountains of knives which cut its hands and feet.	3. Climbs a mountain set with obsidian knives.
4. Is gashed by knives flying through the air.	4. Is beset by these knives blown about by the winds.

The parallelism is complete; but the range of thought is extremely limited—nothing but mountains and knives, besides the river of death common to Egyptians, Greeks and all peoples endowed with a little imagination. Hence Dr E. B. Tylor, who calls attention to the points of resemblance[1], builds far too much on them when he adduces them as convincing evidence of pre-Columbian culture in America taking shape under Asiatic influences. In the same place he refers to Humboldt's argument based on the similarity of calendars and of mythical catastrophes. But the "mythical catastrophes," floods and the like, have long been discounted, while the Mexican calendar, despite the authority of Humboldt's name, presents no resemblance whatsoever to those of the "Tibetan and Tartar tribes," or to any of the other Asiatic calendars with which it has been compared. "There is absolutely no similarity between the Tibetan calendar and the primitive form of the American," which "was not intended as a year-count, but as a ritual and formulary," and whose signs "had nothing to do with the signs of the zodiac, as had all those of the Tibetan and Tartar calendars[2]." Regarding all such analogies as may exist "between

[1] *Mythical Beliefs as Evidence in the History of Culture.* Paper read at the British Association, Oxford, 1894.

[2] D. G. Brinton, *On Various supposed Relations between the American and*

the culture and customs of Mexico and those of China, Cambodia, Assyria, Chaldæa and Asia Minor," Dr Brinton asks pertinently, "Are we therefore to transport all these ancient peoples, or representatives of them, into Mexico?" (*ib.* p. 147). So Lefèvre, who regards as "quite chimerical" the attempts made to trace such resemblances to the Old World. "If there are coincidences, they are fortuitous, or they result from evolution, which leads all the human groups through the same stages and by the same steps[1]."

Many far more inexplicable coincidences than any of those here referred to occur in different regions, where not even contact can be suspected. Such is the strange custom of the *Couvade*, which is found to prevail amongst peoples so widely separated as the Basques and the Guiana Indians, who could never have either directly or indirectly in any way influenced each other. Of these Guiana Indians Reclus remarks that, to whatever ethnical group they may belong, their customs are everywhere very much alike: "L'analogie du milieu et des conditions économiques a rapproché les populations[2]." Sometimes widespread customs which appear motiveless, and therefore all the more inexplicable when found prevailing amongst distant peoples, may receive quite a simple explanation from some circumstance still surviving amongst one or two primitive peoples. Thus the strange reluctance of the mother-in-law to meet her son-in-law, observed amongst Papuans, Australians, Zulus and some American aborigines, seems accounted for by a Patagonian practice which persisted till quite recent times. On the death of any young person the head of the family was required to despatch some aged woman, a mother-in-law by preference. Hence through fear of such a fate women acquired the habit of avoiding all contact with their sons-in-law, and the feeling continued after the motive had been forgotten. Thus the most startling coincidences go for nothing, and, speaking generally, like usages may be regarded as the least trustworthy of all evidences of common descent.

Like usages no evidence of common descent.

Asian Races, from *Memoirs of the International Congress of Anthropology*, Chicago, p. 148.

[1] *Race and Language*, p. 185.

[2] *Nouvelle Géogr. Universelle*, XIX. p. 46.

PART II.

THE PRIMARY ETHNICAL GROUPS.

CHAPTER X.

MAIN DIVISIONS OF THE HOMINIDÆ.

Four Primary Groups—Homo Æthiopicus, Mongolicus, Americanus, Caucasicus—Family Tree of the Hominidæ—The primary groups derived, not one from the other, but independently from a common precursor—Their differences determined by their different environments—Position of the several groups—The Negro—The Mongol and American—The Caucasian—Remarks on this Terminology—Comparative Table of the physical and mental characters of the four primary groups—Centre of Evolution—Distribution of land and water in Secondary and Tertiary Times—The Indo-African Continent—The Austral Continent—The Eurafrican Continent—The Euramerican Continent—America accessible from Europe and from Asia—Theory of de Quatrefages on the migrations of primitive man—His linguistic argument—Views of Dallas—and Brinton—Evolution "with a jump"—The Missing Link—Probable centre of Evolution and Dispersion the Indo-African and Austral regions, true Home of the Lemurs and of the Anthropoids—Characters of the pliocene precursor and of the pleistocene sub-groups persistent in the Afro-Austral regions—Pliocene and pleistocene migrations from the primeval home—Order of Development of the primary groups in their several centres of evolution—Monogenist and Polygenist views reconciled—Flower and Lydekker on the spread of the Hominidæ over the globe.

Four primary groups.

WE have seen (p. 166) that recent systematists show a tendency to return to the broad groupings of Linné and Blumenbach, and to recognise with them not more than three or four main divisions of the human family. Flower and Lydekker in a careful survey of the whole field[1] reduce the Hominidæ to three primary groups, the *Ethiopic*, *Mongolic* and *Caucasic*, leaving the position of the American aborigines an open question. Although "inclined to include them as aberrant members of the Mongolian type," they add: "It is however quite open to anyone adopting the Negro, Mongolian

[1] *Introduction to the Study of Mammals*, p. 743 *et seq.*

and Caucasian groups as primary divisions to place the Americans apart as a fourth" (p. 752). But they really go farther than this, remarking that "now that the high antiquity of man in America—perhaps as high as that which he has in Europe—has been discovered, the puzzling problem, from which part of the Old World the people of America have sprung, has lost its significance. It is indeed quite as likely that the people of Asia may have been derived from America as the reverse[1]." And as the pre-Columbians were practically isolated from the rest of the world, "it is difficult to look upon the anomalous and special characters of the American people as the effects of crossing—a consideration which gives more weight to the view of treating them as a distinct primary division" (p. 753). It would therefore seem that on physical grounds alone these anthropologists are prepared to admit the claim of the Americans to be regarded as an independent branch of the human family. This view is greatly strengthened by a consideration of the mental characters as revealed in the independent cultures of the New World. Hence without denying a common origin of both groups, it may still be argued that the American offshoot has diverged sufficiently to be regarded as a distinct variety in the same sense that the Mongol is itself taken as a distinct variety. In other words, the pre-Columbians differ perhaps as much from the Asiatic Mongols as these do from the Caucasic Europeans; consequently all stand in any scheme on much the same level, constituting three branches more nearly akin to each other than any of them is to the Negro or Ethiopic branch.

Homo Æthiopicus, Mongolicus, Americanus, Caucasicus.

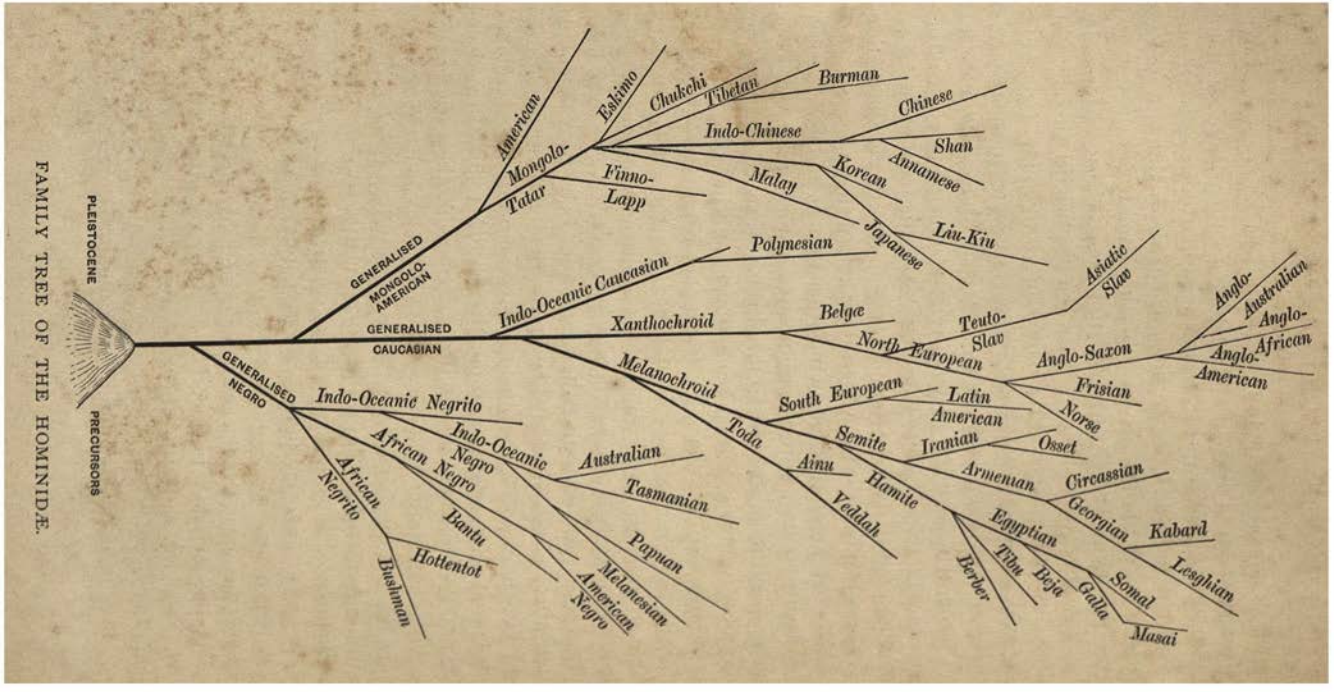
Linné's original fourfold division (p. 164) must therefore be upheld; nothing would be gained either in clearness or accuracy by attempting on minor considerations to increase or reduce the number of the great systematist's primary groups. But these, as explained, are to be regarded as so many main varieties of a single species, whereas for Linné man was a genus

[1] So A. H. Keane: "The arguments brought forward in support of an Asiatic origin of the American would not lose their point if adduced in favour of an American origin of the Asiatic peoples" (*American Indians*, *Encyclopædia Britannica*, 9th ed.).

with four species. As the Negro stands somewhat apart, and admittedly at a lower grade than the other three branches, it might be conceived as diverging first in the process of upward development from the main stem, from which the others ramified later. In a genealogical tree of the human family the several primary branches—HOMO ÆTHIOPICUS, HOMO MONGOLICUS, HOMO AMERICANUS, HOMO CAUCASICUS—would therefore stand relatively to each other and to their respective chief sub-branches somewhat as under. But, as will presently be seen, there is neither "first" nor "second" in the process, and the evolution is to be conceived, not as taking place in temporal sequence, but rather as going on all along the line simultaneously in space and time:—

The primary groups derived from a common precursor independently.

What follows will be mainly occupied with an elucidation of these genealogies, with a view to the establishment of such a general scheme of classification as may seem best to accord with the known pre-historic and present relations. In most ethnological treatises a direct transition is assumed from one to another of the primary groups, usually from the Negro to the Mongol, and from the Mongol on the one hand to the American, on the other to the Caucasian. Such direct transitions are in the abstract possible, the differences being nowhere more than varietal. But they are not probable, and they could scarcely have taken place within the limited time available for the implied physical and mental changes. For it is to be remembered that the differences are shown by comparative craniological studies to have already been everywhere established in neolithic times, while the varying grades of culture, following in ascending order, show that even in the palæolithic age Europe at least was inhabited by peoples differing enormously in mental capacity, consequently it may be assumed also in physical appearance. These disparities, presenting themselves at such an early period in the natural history of man, can be explained only by supposing them to be the result of developments occurring, not consecutively in one area, but simultaneously in several areas, and introduced into Western Europe by successive waves of migration during the warm inter-glacial epoch. On this assumption sufficient time is obtained, not to transform a Negro to a Mongol, or a Mongol to a White, which need never have


FAMILY TREE OF THE HOMINIDÆ.
PLEISTOCENE
PRECURSORS
GENERALISED NEGRO
GENERALISED CAUCASIAN
GENERALISED MONGOLO-AMERICAN
Indo-Oceanic Negrito
Indo-Oceanic Negro
African Negro
African Negrito
Bushman
Hottentot
Bantu
Australian
Tasmanian
Papuan
Melanesian
American Negro
Indo-Oceanic Caucasian
Polynesian
Xanthochroid
Melanochroid
Toda
Ainu
Veddah
Belgæ
North European
South European
Semite
Hamite
Berber
Teuto-Slav
Asiatic Slav
Anglo-Saxon
Frisian
Norse
Latin
American
Iranian
Osset
Armenian
Circassian
Georgian
Kabard
Lesghian
Egyptian
Tibu
Beja
Galla
Somal
Masai
Anglo-Australian
Anglo-African
Anglo-American
American
Eskimo
Mongolo-Tatar
Chukchi
Tibetan
Burman
Chinese
Indo-Chinese
Shan
Annamese
Finno-Lapp
Malay
Korean
Japanese
Liu-Kiu

happened, but to transform several semi-simian pleistocene precursors inhabiting different environments into generalised Negro, Mongolo-American and Caucasian precursors respectively and independently. Transitions taking place in this way would also be immeasurably less violent than those commonly assumed, as is obvious; for we need but suppose that the several pleistocene groups, already presenting certain differences amongst themselves, continued their natural evolution in the direction of those differences in varying physical and climatic surroundings—warm, temperate or cold zones, mountainous or low-lying tracts, wooded or open lands, marine or inland regions, and so on. Thus under torpid suns it would be advantageous to retain more of the original furry coat (hirsute Caucasic Ainus) than in torrid lands (Negroes hairless except on head where a thick woolly covering is needed). So with a temperate foggy climate, which is conducive to a florid complexion, hot suns and dry atmosphere which tend to swarthiness, hot suns and moist atmosphere which aided by a vegetable diet cause a darkening of the subcutaneous pigment. Thus the general evolution would appear to have preceded, not in a single or linear direction, but as shown in our "Family Tree," by successive lateral ramifications from the parent stem, just as man himself was seen (p. 19) to have been evolved not from any specialised anthropoid forms, but from the common anthropoid stem by divergence antecedent to such specialisations.

Their differences determined by their different environments.

In the Tree the first ramification (to the right) is that of the "generalised Negro," that is, the ideal "Homo Æthiopicus," who during his subsequent natural evolution largely ceases to be ideal, but retains in more or less modified form a greater or less number of his original physical and mental characters. These are never entirely obliterated, but continue to flow through the arteries of the whole system, as it branches off in various directions towards Africa, Oceania and Australia. Hence, despite later interminglings, the relationship of the several branches can mostly be recognised, thanks to the persistence of a sufficiently large number of special features. Where doubt arises, it can only

Position of the several groups.

The Negro.

be through excessive miscegenation, by which the specific unity c the whole human family is established, while the more immediat kinship of aberrant groups may be obscured. Thus the Australia branchlet, pointing towards that of the Toda, suggests possibl fusion of Melanochroid Caucasic (South Indian) and Austr Negro blood at a remote epoch in some now perhaps submerge Indo-Austral region.

The Mongol and American.

After the Negro dispersion the main stem throws off (to th left) a generalised Mongolo-American limb, whic presently breaks into two great divisions, th American and the Asiatic Mongol, each preservir a share of the common inheritance, but diverging at such an ear period in their life history that, as above seen, the best authoritie hesitate with regard to their mutual relationship. The ties ha been so weakened by long separation that an ideal Homo Amer canus as well as an ideal Homo Mongolicus must now be assume and studied separately. Here the chief aberrant types, due t the same causes as in the Negro family, are the Eskimo, th Dravidian and the Finno-Lapp, stumbling-blocks to all sy tematists.

The Caucasian.

Between the Negro and the Mongolo-American boughs th main stem passes upwards, developing a generalise Caucasic type—Homo Caucasicus—which also a an early date ramifies into three great branche filling all the intervening central space, overshadowing the Negr overtopping the Mongol, and shooting still upwards, one migh say, into almost illimitable space. Such is the dominant positio of this highest of the Hominidæ, which seems alone destined to great future, as it is alone heir to a great past. All the works of ma worthy of record have, with few or doubtful exceptions, emanate from the large and much convoluted brain of the white Hom

Terminology.

Caucasicus. Needless objection is often made t this term "Caucasic," which was introduced b Blumenbach, and suggested to him by a skull of fine proportion belonging to a native of Georgia, South Caucasia. But the wor like so many others in scientific nomenclature, is purely conve tional and not restricted to the inhabitants of the Caucasus, wh are merely taken as somewhat typical members of the who

family[1]. It is more important to note that Caucasic is not synonymous with "Aryan," or "Indo-European," as is commonly supposed. These are rather linguistic than ethnical designations, hence are excluded from our Tree; and in any case Aryan would only form one of many branches of the Caucasic division, which, as here seen, also comprises Semites, Hamites, Iranians, besides some aberrant groups—Tibu, Toda, Ainu, Polynesian and others.

Physical and mental characters of the primary groups.

It follows from the foregoing considerations that by the four primary divisions are to be understood those first ramifications from the parent stem which, like the branches of a banian tree returning to earth, took fresh root, and became gradually differentiated independently in so many isolated centres. In these centres were evolved those special physical and mental characters, the sum of which constitutes the ideal types of the several independent groups. And although the ideal types themselves have long ceased to exist in their primordial integrity, the determination of the characters is none the less necessary, in order to establish distinct standards whereby to fix the position of the various sub-varieties in the human family. A comparative study of the fundamental types, using the word *fundamental* not absolutely but only in a relative sense, will be facilitated by here summing up the more salient features of each division in tabular form. These tables, based on the data brought together in Chapters VIII. and IX., will enable the student, so to say, to reconstruct the ideals by a sort of eclectic process, and thus to form some notion of the typical primitive Negro, Mongol, American and Caucasian, as they may be supposed to have existed in their several original homes prior to later migrations and interminglings:

[1] Hence a distinction might be drawn between the scientific *Caucasic* and the ethnic *Caucasian*; but this is not necessary, as, the explanation once made, the sense in which the term is used must always be evident from the context. So with the forms *Mongol*, *Mongolian*, *Mongolic*, which have similarly a particular and a general application, the special Mongol group of Central Asia being taken as typical of the whole division. The term *Ethiopic* has also a particular meaning, which sometimes causes confusion. It is applied to the eastern branch of the Hamites, who are not Ethiopians in the general sense, but members of the Caucasic division.

	Ideal Negro Type[1]	Ideal Mongol Type	Ideal American Type	Ideal Caucasic Type[2]
Hair	*a.* Short, jet black, frizzly, flat in transverse section, little or no beard; *b.* Reddish brown, woolly	Coarse, black, lustreless, lank, round in transverse section, beardless, but moustache common	Very long, coarse, black, lank, nearly round in section; beardless	*a.* Long, wavy, soft, flaxen; *b.* Long, straight, wiry, black; both oval in section; both full bearded
Colour	*a.* Blackish; *b.* Yellowish brown	Yellowish	Coppery, yellowish	*a.* Florid; *b.* Pale
Skull	*a.* Dolichocephalous; 72 *b.* Brachycephalous; 83	Brachycephalous; 84	Mesaticephalous; 79	*a.* Dolichocephalous; 74 *b.* Brachycephalous; 83
Jaws	Prognathous; 60	Mesognathous; 68	Mesognathous; 72	Orthognathous; 76
Cheek bone	Small, moderately retreating	Prominent laterally	Moderately prominent	Small; unmarked
Nose	Very broad, flat, platyrrhine; 56	Very small, mesorrhine; 52	Large, bridged or aquiline, mesorrhine; 50	Large, straight or arched, leptorrhine; 46
Eyes	Large, round, prominent, black; yellowish cornea	Small, black, oblique, outer angle slightly elevated, vertical fold of skin over inner canthus	Small, round, straight, sunken, black	*a.* Blue; *b.* Black; both moderately large and always straight
Teeth	Large (macrodont)	Medium (mesodont)	Medium (mesodont)	Small (microdont)
Stature	*a.* Above the average; 5 ft. 10 in. *b.* Dwarfish; 4 ft.	Below the average; 5 ft. 4 in.	Above the average; 5 ft. 8 in.	*a.* Above average; 5 ft. 8 in. *b.* Average; 5 ft. 5 or 6 in.
Speech	Agglutinating of various prefix and postfix types	Agglutinating chiefly with postfixes; isolating with tones	Polysynthetic mainly	Chiefly inflecting; some agglutinating
Religion	Non-theistic, nature and ancestry worship; fetishism and witchcraft prevalent	Polytheistic; shamanism; Buddhism: Transmigration	Polytheistic; animism; nature worship	Monotheism: Judaism; Christianity; Mohammedanism
Temperament	Sensuous, indolent, improvident; fitful, passionate and cruel, though often affectionate and faithful; little self-respect, hence easy acceptance of the yoke of slavery; science and art undeveloped	Sluggish, somewhat sullen, with little initiative, but great endurance; generally frugal, thrifty and industrious, but moral standard low; science slightly, art and letters moderately developed	Moody, taciturn, wary; deep feelings masked by an impassive exterior; indifference to physical pain; science slightly, art moderately, letters scarcely at all developed	Active, enterprising, imaginative: *a.* serious, steadfast, solid and stolid; *b.* fiery, impulsive, fickle; science, art and letters highly developed in both

[1] *a.* = Negro; *b.* = Negrito.

[2] *a.* = Xanthochroi; *b.* = Melanochroi.

Reserving each of these four types for special treatment, it will be convenient here to consider such general questions as equally concern them all. Such are mainly their probable primeval homes, and the direction of their first migratory movements, in other words, their several centres of evolution and dispersion.

Centres of Evolution.

From all the foregoing remarks there follows a first important corollary, that although man had but one origin, one pliocene precursor (p. 38), men had several separate places of origin, several pleistocene precursors. In our Family Tree four such precursors are assumed, and the question at once arises, in what inhabitable regions of the globe were they evolved? Here the inquiry assumes a somewhat speculative turn, as is obvious from the consideration that, despite the views put forward by Wallace[1] and others regarding the stability of the Continents, the inhabitable regions of the globe have certainly undergone considerable modifications since the appearance of the Hominidæ in their several geographical areas. Doubtless Wallace is right in rejecting Sclater's "Lemuria," as unnecessary to account for the range of the Lemurs. But he cannot reject the "Indo-African Continent," which replaces Lemuria in the Indian Ocean, and which is established on a solid foundation by the naturalists associated with the *Indian Geological Survey*[2]. Thus the hippopotamus, now confined to Africa, is found in a fossil state both in Madagascar and in the Sivalik Hills (Himalayan foothills), while the plants of the Indian and South African coal measures are absolutely identical, and the remarkable *Dicynodon* and other allied forms of fossil reptiles are equally characteristic of both regions. Hence, although belonging mainly to secondary times, considerable sections of the Indo-African Continent, such as are still represented by Madagascar, the Chagos, Seychelles, Mascarenhas and other smaller groups, must have persisted far into the tertiary epoch.

Former distribution of land and water.

The Indo-African and Austral Continents.

[1] *The Comparative Antiquity of Continents, as indicated by the Distribution of Living and Extinct Animals*, *R. G. S. Journal*, 1877, and elsewhere.

[2] See especially R. D. Oldham, *The Evolution of Indian Geography*, in *Geograph. Jour.* March 1894.

During this epoch Australia also was far larger than at present, not only comprising New Guinea, Tasmania, and perhaps New Caledonia in the Pacific, but also stretching westwards probably as far as the islets of St Paul and Amsterdam, that is, to within a relatively short distance of the Mascarenhas in the Indian Ocean. "The islands of St Paul and Amsterdam may indicate where an intervening land once formed a stepping-stone for the intermigration of the plants of Australia and South Africa."[1] In fact an Austral Continent dating from late secondary or early tertiary times, surviving in fragments down to the quaternary epoch, and extending from the Cape through Madagascar and Australia towards New Zealand, seems to be postulated by the huge cursores and other birds such as the æpyornis of Madagascar, the dodo of Mauritius, the Australian dromornis and the moa of New Zealand, surviving till quite recently in those regions.

The Eurafrican Continent.

To the Indo-African Continent in the southern hemisphere corresponded a later (Miocene) Eurafrican Continent in the northern hemisphere, which occupied a considerable section of the present Mediterranean basin, as shown by the miocene formations, on the Mauritanian seaboard, in the islands and on the opposite side at intervals as far east as the Caucasus[2]. At that time the Sahara also formed, not a marine bed, as is generally supposed, but an elevated region at a much greater altitude above sea level than at present[3]. Thus in the miocene epoch there was continuous land almost everywhere between Europe and Africa, and the connection still continued at several points throughout pliocene times[4], when gradual subsidence transformed the miocene plains first into three separate basins, and then into a vast inland sea extending from the Caucasus to the Atlantic. But geologically this marine inlet, on the shores of

[1] A. R. Wallace, *Australasia* (Stanford Series, new issue), p. 99.

[2] See F. W. Rudler and G. G. Chisholm, *Europe* (Stanford Series), Chap. I. *passim*.

[3] See A. H. Keane, *Africa* (Stanford Series, new issue), Vol. I. ch. iii. *passim*.

[4] At Gibraltar, where the present strait is of relatively recent formation; between Tunis and Sicily, still connected by a shallow submarine ridge; and between Libya and Greece united in tertiary times by a vast plain, the haunt of the lion and rhinoceros (Reclus, English ed. I. p. 36).

which the tribes of men settled down "like frogs around a swamp" (Plato), is but a western extension of the still larger central Asian depression, which towards the close of the miocene age extended from Turkestan to Sicily, and the subsidence of which was synchronous with that of the Mediterranean, and with the final upheaval of the orographic system which stretched from the Pyrenees, through the Alps and Caucasus to the Himalayas.

Thus when the pliocene precursor, wherever evolved, began to spread abroad, he was free to move in all directions over the eastern hemisphere. Like the anthropoid allied forms, he could have wandered, say, from the Indo-African Continent, either eastwards to India and to Malaysia, where are now the gibbon and orang, or westwards to Africa, where are now the chimpanzee and gorilla, and thence northwards to Europe whither he was preceded by the extinct miocene dryopithecus. From the Indo-African Continent the road was also open through Australasia towards New Zealand, and from India to the shores of the flooded central Asian depression. Nor could climate anywhere present any difficulty, for this first dispersion took place during the long inter-glacial warm period, when a temperate flora ranged as far north as Spitzbergen, and when a rich arborescent vegetation afforded sufficient shelter from the fiery pliocene suns.

Inter-glacial Climate.

From the Eastern Hemisphere the New World could at that time be easily reached either from Europe or from Asia. Without conjuring back Plato's vanished "Atlantis," recent surveys have revealed the presence of a submarine bank, which stretches from Scotland through the Faroes and Iceland to Greenland, and which is nowhere more than 300 or 400 fathoms deep. Although partly of igneous origin, the corresponding strata on both sides of the North Atlantic, together with striking resemblances between the respective faunas and floras, show that this ridge represents a vanished Continent of great age, which would appear to have still formed dry land in late tertiary times. Miocene limestone formations occur even in the island of St Mary, one of the Azores, midway between the Old and New Worlds, while Terceira, another member of the same group, is strewn with boulders both of crystalline and sedimentary

America accessible from Europe.

origin, on the provenance of which geologists have however not yet made up their minds, whether transported by floating ice during the glacial period from the American mainland, or torn by volcanic agency from a subsiding continent.

And from Asia.

On the Asiatic side the two continents converge at Bering Strait to within a distance of 60 miles between Capes East and West, while the strait itself has a mean depth of little over 20 fathoms. In clear weather the American is visible from the Asiatic headland, and in mid-channel lie the Diomede islets, stepping-stones between the two hemispheres. Farther south the Aleutian chain, enclosing the shallow Bering Sea, extends from the Alaskan Peninsula westwards to the "Near Islands," so named from their proximity to the Siberian coast. For a great part of the year the intervening spaces are spanned by frozen masses, so that even before the first kayak was launched, primitive man might have passed on solid ground to and fro between the eastern and western hemispheres.

But these essential factors, by which the problem, one might say, *solvitur ambulando*, have been for the most part either neglected or misunderstood by those who have approached the question of man's early migrations. Thus de Quatrefages, removing Sclater's Lemuria, without substituting the Indo-African Continent of the Indian Survey, leaves a great ocean flowing between the African and the Oceanic sections of the Negro division. Then, to meet the difficulty, he locates this with all the other primary divisions somewhere round about the Central Asian plateau, as if these groups could become differentiated in the same physical environment, although to be sure, the conditions of existence are assumed to be different. The environment itself is reached from the Arctic regions where the precursor was evolved at a time when Spitzbergen enjoyed a temperate climate like that of California at present, and we are assured that this hypothesis of a boreal origin agrees with all the facts in the early history of man, and alone enables us to coordinate them[1]. From the extreme north tertiary man was driven *en masse* by the

Migrations of primitive man.

Views of de Quatrefages.

[1] *Histoire Générale des Races Humaines*, I. p. 133.

advancing ice-sheet to the central plateau, which is therefore taken, not as the cradle of the species, but as "le centre de caractérisation des types ethniques fondamentaux de l'époque actuelle" (p. 137). Yet in flat contradiction to this assumption it is added that it is not to be supposed that the migration southwards, determined by the increasing cold, took everywhere the same direction. On the contrary some of the emigrants wandered away into America as far south as Brazil and the pampas, while others passed through Syria into Africa, sending offshoots ("éclaboussures") south to the Cape. Central Asia thus ceases to be the *officina gentium*, where the present fundamental types were elaborated. To the Negro division, and especially to the Negrito sub-group, is given an enormous expansion, radiating through Irania and South Arabia westwards to Africa, and through India south-eastwards to Oceania, these movements being required by the necessity of avoiding the Indian Ocean impassable before the invention of navigation. The general theory is supported by linguistic arguments, which are based on a radical misconception of the evolution of speech. Thus it is affirmed that "d'une langue agglutinative ne sort pas un dialecte monosyllabique" (p. 300), the fact being that, as seen in Chapter IX., all monosyllabic languages have been developed from agglutinating forms. Again, the Negro migration from India to Australia is stated to be proved by the affinity of the Australian and Dravidian languages, "aujourd'hui universellement admise" (p. 333). This is one of those reckless assumptions which have brought philology into disrepute with all anthropologists, but respecting which it must suffice here to state that no sound philologist has ever affiliated the Australian to the Dravidian linguistic family[1].

Views of Dallas

The "Geographical Distribution of Mankind" has also been discussed by Mr James Dallas in a learned and well written monograph[2], which, however, is also vitiated by a disregard for the distribution of land

[1] "The numerous Australian idioms seem all related to each other, but have no affinity with any other linguistic family" (A. Hovelacque, *Science of Language*, English ed. 1877, p. 67). "The Dravidian tongues may safely be regarded as an independent group, related to no other linguistic family" (ib. p. 79).

[2] *Anthrop. Journal*, 1885, pp. 304—30. In this essay Mr Dallas proposes

and water in tertiary times. While the Indo-African Continent is ignored, the Sahara is submerged and Africa thus separated by an impassable liquid barrier from Europe. "Thus Europe would be effectually separated from Africa except at one point—the Dardanelles" (*sic*); and thus also the migrations not only of man, but also of the large African fauna into Europe would be left unexplained. It is not surprising that the attempted scheme of distribution is almost admittedly a failure, and that the writer confesses himself "at a loss for a starting-point" for his "Mesochroic" (Mongol) division. Here also linguistic and ethnical questions are confused, and a disposition is shown "to revert to the old Atlantis theory," in order to account for a purely fanciful "affinity of the Basque and American languages," an affinity which we are assured "must at once occur to every ethnologist" (p. 329). Basque has no affinities, beyond that due to loan words, to any other group in the New or the Old World, unless indeed G. von der Gabelentz can be said to have established a remote kinship with the Berber of North Africa.

It may here be remarked that, however useful it may often be in connection with the study of existing races, language is of little or no avail in the elucidation of the early history of man. It is no longer possible to say how far the different present forms of speech had established themselves in those remote times; and such profound changes must have taken place since then, that resemblances between languages spoken thirty or forty thousand years ago have in any case necessarily long been obliterated. Some—the Semitic for instance—are no doubt marvellously persistent; but none, unaided by a written literature, could possibly resist the ravages of phonetic decay and other disintegrating influences acting for ages on the rude dialects of primitive man. Hence no use is here made of arguments drawn from linguistic resemblances or disparities, except only for the relatively later movements in the Indo-Pacific regions and elsewhere.

and Brinton.

Lastly, reference may be made to Dr D. G. Brinton's paper in the *Forum* for December 1894 on "The Beginning of Man and the Age of the Race," which by a process

Leucochroi, *Mesochroi* and *Æthochroi* as substitutes for White, Yellow and Black respectively.

of elimination places the original home somewhere or anywhere along the southern slopes of the mountain ranges stretching from the Cantabrian Alps to the eastern Himalayas, but by preference in the western section, where "up to the present time his earliest vestiges have been exhumed....Speaking from present knowledge, we must say we know of man nowhere earlier than within the area of England, France and the Iberian peninsula." But all the known facts seem to imply that here man is an intruder arriving in west Europe from the south across the Mediterranean isthmuses (Ch. XIV.) in company with the great African fauna. West Europe is far too limited an area, and has been too frequently subject to upheaval and subsidence, to be the primeval home of the higher and larger mammals. But of course anything might happen anywhere, according to this anthropologist's new and somewhat startling theory of "evolution *per saltum*," which is proposed as an alternative between the doctrine of "specific creation" and that of the "missing link," which is again made the butt of some needless ridicule. By this "evolution with a jump" is meant "that process which produces 'sports' in plants and 'cranks' or men of genius in respectable families...So it may have been with the first of men, &c."

But, apart from these eccentricities, it cannot be denied that, although the missing link must be postulated (see p. 57), the failure, after a long and diligent search, to discover it in those regions where its presence might be looked for, is sufficiently surprising to need explanation. One obvious explanation may be that all traces of remote fossil forms must in any case be extremely rare, as seen in the few fragmentary remains hitherto discovered, for instance, of dryopithecus, which nevertheless must have abounded in the miocene forests of India and the Mediterranean basin. Unless protected by the accidental shelter of glacial deposits, rocky fissures and cavernous recesses, the osseous remains of animals strewn on the surface of the ground, or left undevoured by the carnivora, must with years crumble and mingle with the soil. Nor is it to be supposed that the search is exhausted, especially when it is remembered that scarcely a generation has passed since inquiry has been turned in this direction by the appearance of *The Origin of Species*.

But few missing links of much more simian aspect than those of Java or Neanderthal will probably ever be brought to light, the pliocene precursor having apparently originated in a now submerged area where the transitional forms can no longer be recovered. This area must obviously be sought in those regions of the Indo-African and Austral Continents, which survived into tertiary times, and which were the common home of the anthropoids and of the lemurs with both of which sub-orders the Hominidæ show affinities. It will be admitted that, *cæteris paribus*, such a region is more likely to have been the cradle of mankind than any other, where the lemuroid and anthropoid precursors occur either only sporadically, or not in association, or else not at all. Thus are excluded, the whole of the New World and most of the northern section of the eastern hemisphere, leaving as the only possible centre of evolution some part of the southern section of the eastern hemisphere, where the proportion of land to water was far greater in the secondary and early tertiary periods than at present. In fact dry land extended continuously from the Atlantic to the Pacific, affording a free range to the lemuroids, the anthropoids and the dark Hominidæ, all of which are now divided into western and eastern (African and Oceanic) groups by the intervening waters of the Indian Ocean. The true lemurs abound now mainly in Madagascar; but more generalised forms exist both in that surviving section of Indo-Africa (the gigantic *Megaladapis* and the Aye-Aye or *Chiromys Madagascariensis*), in Malaysia (the Flying lemur, or *Galeopithecus volitans*), and even in Ceylon (the Loris or *Nycticebidæ*, popularly known as "Slow Lemurs," found also in the Eastern Archipelago). So with the higher apes, as already seen, and with the two great sections of the Negro division of the Hominidæ. The inference seems irresistible, that all these allied forms had their common primeval home in and about the Indo-African and Austral Continents, of which considerable sections still survive.

Probable centre of evolution.

The Indo-African and Austral regions.

Other considerations point with equal force in the same direction. That the immediate precursor was a tropical or sub-tropical furry animal of arboreal habits is generally allowed, and this description

Characters of the pliocene precursor

applies to all the allied forms, some of which have coats combined of wool and sleek hair[1]. Man has both uncombined, and it is easy to see that, according to the requirements of the environment, one or other might be dropped, without assuming any transition from wool to hair. In other respects the precursor is described by de Quatrefages as probably red-haired, yellow-skinned, and prognathous, the red being perhaps rather a russet brown, the yellow a yellowish brown. This writer also points out that some of the sub-groups in the Negro division are not black but yellow, while the Negro himself shows a tendency to revert to this colour, whereas a tendency to hark back to darker shades is never observed in the yellow division and rarely in the white, from all of which phenomena it is inferred that blackness is not an original but an acquired character in the Negro division[2].

These views are confirmed by other considerations, such as the fact noted by Darwin that "the children of the Australians immediately after birth are yellowish brown and become dark at a later age[3]," which is true also of the African Negro whose soles and palms are always yellow. With regard to the black hair both of the Negro and of the Mongolo-American, it is specially noteworthy that in East Tibet it is of a pale brown in infancy, changing in the tenth or twelfth year to a bright or glossy black, though in some cases a dark chestnut hue is retained for life, while the iris is always either brown or "d'un jaune foncé[4]." Similarly Giovanni Pelleschi tells

persistent in the Afro-Australian regions.

[1] The Aye-Aye, for instance, "is clothed with longish smooth hairs with an under coat of a woolly nature" (N. S. Dallas, *The Animal Kingdom*, p. 772), somewhat like the lanugo of the human fœtus.

[2] "On est conduit à admettre comme probable que nos premiers ancêtres avaient la chevelure tirant sur la teinte rouge plus ou moins roussâtre. Le pigment cutané, qui donne aux individus et aux races leur couleur caractéristique, examiné au microscope, présente toujours quelque chose de plus ou moins jaune....En invoquant encore les faits que je viens de rappeler, il est permis de penser que cette teinte dominait chez l'homme primitif" (*Op. cit.* p. 156).

[3] *Descent of Man*, 2nd ed., p. 557. And according to Brough Smyth they "are nearly of the same colour as European children when born, and all of them are generally light-red" (*The Aborigines of Victoria*, I. p. 6).

[4] Desgodins, quoted by V. de Saint-Martin, *art. Tibet*, p. 591.

us that the children of the Mattacco and Toba aborigines of Gran Chaco, Argentina, "up to ten or twelve years have reddish hair, a curious fact recalling the theory of De Salles, according to which primitive man was red-haired[1]," like the Orang-utan of Malaysia. Even amongst the true Negroes of the Welle basin, Central Africa, "red hair occurs both amongst the dark and light peoples," while some of the dark Zandehs (Niam-Niams) have "very light, almost yellow-leather skins."[2] The hair of the Wochua dwarfs in the same basin is described by the same observer as "of a dark, rusty-brown hue," and many are stated to have "full beards and hairy breasts" (*ib.* III. p. 82). Other Negritoes both in the western and eastern sections of the Negro domain, present more pronounced simian features than any other living human groups. Such are the Akkas of Mangbattuland, the Batwa and others of the Congo forest zone, the Sakais of the Malay Peninsula, the extinct Kalangs of Java, and the also extinct Australian tribe of the Adelaide district, whose skull, as described by Dr W. Wyatt[3], reproduces the enormous superciliary arches and some other traits of the Neanderthal race. Thus are found still persisting or till lately surviving in these Indo-African and Austral regions, and nowhere else, several human groups, which approach nearest both to the higher simian and to the earliest known paleolithic types. Some of these groups, notably the yellow Bushmen of South Africa, the Sakais, the Aetas of the Philippines, the Karons of North-West New Guinea, and the extinct Tasmanians, have always stood at a stage of culture scarcely, if at all, higher than that of eolithic man in West Europe.

Pliocene and Pleistocene migrations.

Thus all the conditions point to these Indo-African and Austral lands as the most probable centre of evolution of the pliocene precursor, who may have easily migrated thence in small family groups to every part of the eastern hemisphere—northwards through India to Central Asia, eastwards and westwards to Australasia and

[1] *Eight Months on the Gran Chaco of the Argentine Republic*, 1886, p. 31.

[2] Junker, *Travels*, II. p. 240.

[3] *Some Account of the...Adelaide and Encounter Bay Aboriginal Tribe* &c. Adelaide 1879. This tribe died out about the year 1850.

Central Africa, and from Africa to Europe. From the already described distribution of land and water at that time, it is evident that all the continents were directly accessible by "overland routes" to the migratory groups, which in their new homes became independently specialised by the natural process of readjustment to the different environments. And thus arose in the new centres of evolution the several pleistocene groups, whence are derived without any violent transitions the present primary divisions of the human family. Treating of the relative antiquity of these divisions de Quatrefages concludes that "The human races have appeared in the following order: The Yellow, or at least a section of them, would appear to be the elder branch of the present human family; other Yellow men, the Blacks and the Allophylian Whites followed apparently very soon after them, and it would be difficult to say which came first; then may have come the Semites and at last the Aryans."[1] This successive evolution of Blacks, Allophylian and other Whites from different sections of a Mongol prototype, involves transformations, which are both improbable in themselves and unwarranted by the known facts. It seems far more natural to assume an independent and simultaneous evolution of the several pleistocene groups from a generalised pliocene precursor in different surroundings, where the specialised forms were each determined by their special environment, and afterwards diversely modified by fresh migrations and interminglings. Thus the question of "relative antiquity" scarcely arises, for all the present divisions ascend directly and independently in parallel lines from so many pleistocene groups, themselves determined by the physical conditions of their respective centres of evolution. By this assumption a reconciliation is also to a certain extent effected between monogenist and

Primeval home.

Order of development of the primary groups.

[1] *Op. cit.* p. 161. By "Allophylian Whites" are here meant those Europeans of fair type, such as the Finns and Basques, who are not of Aryan speech. The term "allophylian," from Gr. ἄλλος and φυλή, was introduced by Prichard (*Nat. Hist. of Man*, 2nd ed. p. 185), as the collective name of all European and Asiatic peoples not belonging to the Aryan, Semitic or Hamitic races. But like "Turanian" and other vague terms liable to be abused by popular ethnographists, it is now little used in strictly scientific ethnological writings.

polygenist views. The Hominidæ are not separately evolved, in an absolute sense, that is, from so many different anthropoid precursors; but the present primary divisions are separately evolved from so many different pleistocene precursors, themselves evolved through a single pliocene prototype from a single anthropoid precursor.

Such would also seem to be the assumption of Flower and Lydekker, who, in discussing the primeval dispersion, remark that the first Hominidæ were probably all alike (our pliocene groups); but as they spread over the globe, they became modified by climate, food, the struggle for existence with themselves and with other animals, by selection acting on slight variations, and so forth, the differences showing themselves externally in the colour of the skin, in the colour and texture of the hair, form of head and face, proportions of limbs and stature. These anthropologists also point out that geographical position must have been a main factor in determining the formation and permanence of races. Groups isolated in islands or secluded uplands would in due course develop new types in the physical and moral orders. But on large open spaces, continental plains or plateaux, unobstructed by great ranges or other natural barriers, free intercourse would make for uniformity. Smaller or feebler groups would be absorbed or wiped out, conquerors and conquered disappearing or merging together. "Thus for untold ages the history of man has presented a shifting kaleidoscopic scene," a ceaseless "destruction and reconstruction," a constant tendency towards differentiation and towards fresh combinations in a common uniformity, the two tendencies acting against and modifying each other in diverse ways. At the same time the history of the evolution of the present divisions has been mainly obliterated, and the absence of paleontological evidence, that is, of physical facts drawn from the remote ages when the different races were being slowly fashioned, makes their reconstruction largely conjectural. In other words, the geological record is necessarily imperfect, and many chapters being absent, the gaps between transitional forms cannot all be bridged over. The starting-point itself in the inquiry is unknown, and may never be discovered, as it may lie

Flower and Lydekker on the spread of the Hominidæ over the globe.

buried in the bed of the Indian Ocean, or of some other marine or lacustrine basin[1].

The detailed study of the several primary divisions, to which the following chapters are devoted, will tend to confirm these views regarding the geographical centres of evolution and dispersion of the Hominidæ.

[1] *Introduction to the Study of Mammals*, pp. 742—43.

CHAPTER XI.

HOMO ÆTHIOPICUS.

Two divisions: African and Oceanic—Negro Family Tree—The Negritoes: Two divisions—Early migrations—The African Negritoes—The Akkas and Batwa—The Bushmen and Hottentots—Past and present Hottentot-Bushman domains—The Oceanic Negritoes—The Black element in India—The Oceanic Negrito groups: Andamanese; Sakais of the Malay Peninsula; Aëtas of the Philippines; Karons of New Guinea; Kalangs of Java—The Negro divisions compared—The African Negro unprogressive without miscegenation—Testimony of H. H. Johnston, Manetta, Ruffin and Sir Spencer St John—Historic evidence—Low state of Negro culture—Two main sub-divisions: Sudanese and Bantu—The Sudanese Negroes—Mixed Sudanese groups—The Fulahs—The Negroid Bantus—The Zulu-Kafirs and Wa-Huma—The Bantu linguistic family—General intermingling of the Sudanese and Bantu populations—Hence classification impossible except on a linguistic basis—Tables of the Sudanese and Bantu groups—The Oceanic Negro domain—An area of great ethnical confusion—Two main sub-divisions: Insular Negroes and Negroid Australians—Nomenclature: Melanesians; Papuans—The Papuan domain, past and present—The Papuan type—The linguistic problem—Wide diffusion of Malayo-Polynesian speech not due to Malay or Polynesian Migrations—Still less to Melanesian Migrations—The true explanation; the Caucasic factor—The Australian sub-division—Not homogeneous—Constituent elements of the Negroid Australians—and of the Tasmanians—Tasmanian culture eolithic.

In our Family Tree the "Generalised Negro" appears to be first detached from the parent stem. But strictly speaking it was not detached at all. The Negro group is to be conceived rather as remaining in the primeval home, left behind, so to say, while the others passed on to their several centres of evolution. As seen in the last chapter, this primeval home is assumed to be the Indo-Austral region now flooded by the Indian Ocean. But before, or simultaneously with, the subsidence of the land, its human inhabitants gradually withdrew westwards to Africa, northeastwards to India

Two divisions: African and Oceanic.

and Malaysia, eastwards to South Australia and Tasmania and later to New Zealand. Thus from the remotest times were constituted by easy and natural migrations the various Negro groups in those regions on both sides of the Indian Ocean, where they have always dwelt, and where they are still found, generally in association with the allied anthropoid apes. Perhaps the strongest argument for the original unity of all these groups, now separated by a great marine basin, is afforded by the fact that the two main sections, the African and Oceanic, comprise two distinct types, the tall Negro and the dwarfish Negrito. As the Negrito appears to represent the primitive stock, from which the Negro diverged later, such a parallelism cannot be regarded as a mere coincidence. In the accompanying Family Tree of Homo Æthiopicus are shown the main ramifications of both sections and sub-sections of the Negro stock.

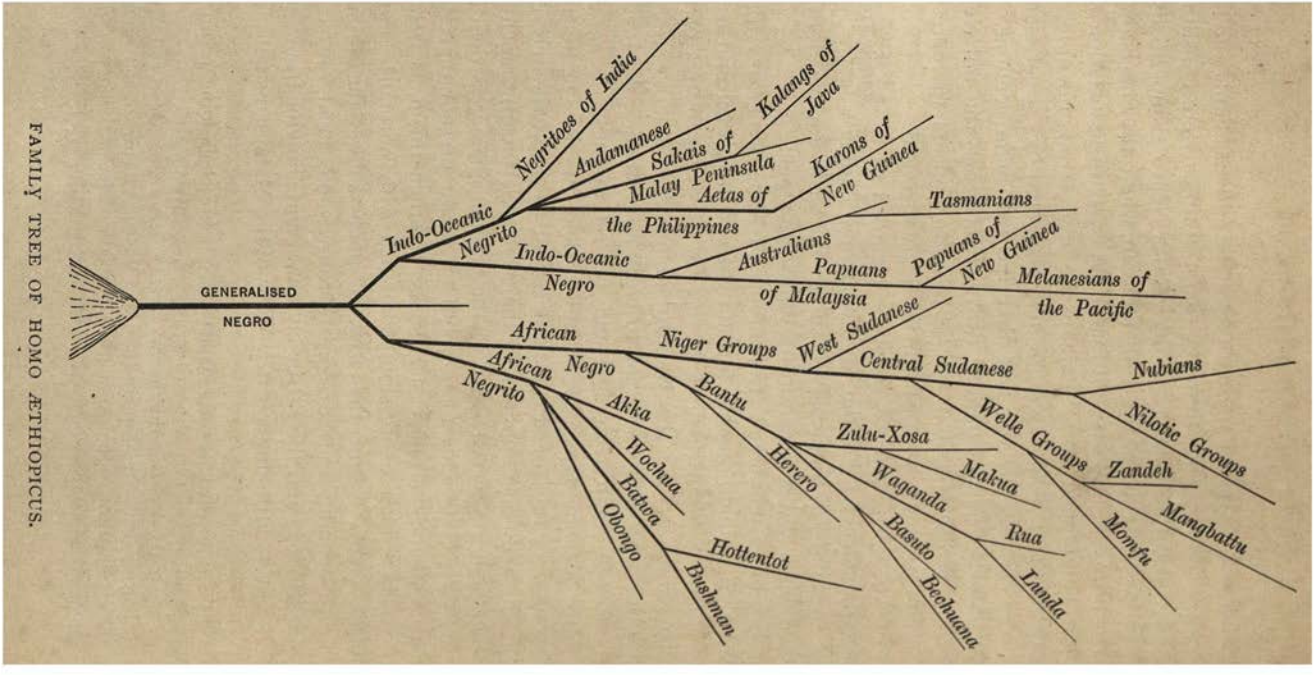
Negro Family Tree.

Here the parent stem, after throwing off the two great African and Indo-Oceanic branches to the right and left (west and east), soon dies out, submerged, as it were, by the rising waters of the Indian Ocean. That the Negrito[1] branches, from which the Negro proper is seen to break away at an early date in both regions, stand nearest to the primitive human type, seems self-evident, if de Quatrefages' description of the precursor be accepted as approximately correct. It would also appear that the western (African) branch has on the whole preserved more of the original characters than has the eastern (Indo-Oceanic). Both no doubt present in certain groups (Akka, Sakai) an equal degree of prognathism, as well as an equally simian expression, combined with normally brachycephalic crania. But the African alone shows the original yellowish complexion, the reddish-brown woolly head, the somewhat hairy body and the extremely low stature, ranging from about 3 ft. 4 in. to a little under 5 ft.[2]. Few of the Malaysians fall much

The Negritoes: two divisions.

[1] Span. *negrito* and *negrillo*, diminutives of *negro*; both forms occur, but *negrillo* is little used in English writings.

[2] Some of the dwarfs of the Semliki river between Lakes Albert and Albert Edward are spoken of by Captain Lugard as "about 3 ft. high," and reaching "to the hip-bone of Suron Adam, the Sudanese sergeant, who was about 6 ft. 3 in." (*The Rise of our East African Empire*, II. p. 178.) But these do


FAMILY TREE OF HOMO ÆTHIOPICUS.
GENERALISED NEGRO
Indo-Oceanic Negrito
Negritoes of India
Andamanese
Sakais of Malay Peninsula
Kalangs of Java
Aetas of the Philippines
Karons of New Guinea
Indo-Oceanic Negro
Australians
Tasmanians
Papuans of Malaysia
Papuans of New Guinea
Melanesians of the Pacific
African Negro
African Negrito
Akka
Wochua
Batwa
Obongo
Bushman
Hottentot
African
Niger Groups
West Sudanese
Central Sudanese
Nubians
Nilotic Groups
Bantu
Zulu-Xosa
Herero
Waganda
Makua
Basuto
Bechuana
Rua
Lunda
Welle Groups
Zandeh
Momfu
Mangbattu

below 4 ft. 6 in., while some, such as the Andamanese, rather exceed 5 ft. The colour also is described as deep brown or blackish, so that it is not always easy to distinguish between the true Negritoes and the Negroes (Papuans, Melanesians) of Oceanica; whereas in Africa no doubt ever arises. Here it may be remembered that the term "gorilla" was in the first instance applied by the Carthaginian Admiral, Hanno, not to the anthropoid so named by du Chaillu, but to certain hairy women seen by him and his companions on the west coast, probably the dwarfs still surviving in the Ogoway basin. The Akkas, Wochua, and others of the Welle basin have a still more venerable historic record. They were not only known by repute to Aristotle, Herodotus, and even the Homeric singers, but had already been introduced into Egypt during the First Empire. At least Dr W. Pleyte has shown[1] that the Akkas described by Miani and Schweinfurth most probably represent the pygmies sculptured on the tombs of Ti and Ptahhotep at Sakkarah, referred to the time of Tatkara (Tankheres) of the 5th dynasty, that is, according to Mariette, 3366 B.C. These figures, which are in bas-relief, faithfully reproduce their racial characters, while a dwarf from Beni-Hassan, in Upper Egypt, is depicted in Rossellini's design with the feet turned inwards, exactly like Schweinfurth's Akkas[2]. Mariette[3] points out that the Egyptians were acquainted with the Welle lands whence they procured these dwarfs, who are referred to in a hieroglyphic inscription recording that "to him come the pygmies of Niam-Niam from the Southern Lands, to serve in his household[4]." Pleyte also mentions the well-known

Early migrations.

not appear to have been full grown; and the Batwa of the district north-west of Luluaburg (South Congo basin) measured by Dr Ludwig Wolf, averaged quite 4 feet 3 inches (*Nature*, March 24, 1887, p. 497). None of the four Akkas brought to Europe in 1874 and 1876 (Marno and Long) exceeded 3 ft. 4 in.

[1] *Chapitres Supplémentaires du Livre des Morts; Traduction et Commentaire*, Leyden, 1883.

[2] "Ils ne surpassent pas un mètre de hauteur; ils ont les pieds tournés au dedans, ce qui rend leur marche chancelante" (II. p. 159).

[3] *Société Khédiviale de Géographie*, April, 1876.

[4] From Dümichen's *Geographische Inschriften*, Pl. 31, quoted by Dr Pleyte. It should however be stated that the hieroglyph transcribed *Nam*,

statue of the dwarf, Nemhotep, who had a tomb of his own dating from the same 5th dynasty, and who belonged to the same group as those of the Sakkarah monuments.

From Egypt, or else from Mauritania, where dwarfish tribes are still spoken of[1], some of these Negritoes appear to have found their way into Europe in neolithic if not earlier times. At the meeting of the British Association, Oxford, 1894, the Swiss Anthropologist, Dr J. Kollmann, read a paper on "Pygmies in Europe," in connection with some human remains recently exhumed from the neolithic stratum of a prehistoric station near Schaffhausen. Side by side with skeletons of the normal size were found four or five averaging not more than 1·424 mm., say, 4 feet 8 inches. Reference was made in the same paper to the small people about 5 feet high still surviving in Sicily and Sardinia, that is, on the high road between pleistocene Africa and Europe, who were regarded by Dr Kollmann, not as degenerate Europeans, but as representatives of a distinct variety of mankind, which occurs in several types dispersed over the globe, and which he believes to have been the precursors of the taller races of mankind. Some support is lent to this view by the folklore of many northern peoples, and perhaps even by more substantial evidence, such as the remains of little people said to have been found in the Hebrides by Dean Monro in 1549 and by the traveller Martin in about 1703, and in an island of Hudson Bay in 1631 by Foxe, who tells us that "the longest corpses were not above four feet long[2]."

The African Negritoes.

Although many of the Akkas and some other groups are described as somewhat disproportioned and top-heavy, with tottering gait, the African Negritoes appear to be, on the whole, well made, except perhaps for a too protuberant paunch, very active, daring hunters, and fairly intelligent. Certainly the description given by Oscar

or *Niam* by Dümichen is read *Nu* and *Nun* by Birch and Brugsch, and the term "Niam," now applied by their neighbours to the cannibal Zandehs, can hardly have been a territorial designation over 5000 years ago.

[1] A. H. Keane, *Africa*, 1895, I. p. 86.

[2] See Prof. B. C. A. Windle's Introduction to the re-issue (1894) of Dr Edward Tyson's *Essay Concerning the Pigmies of the Ancients*, 1699.

Lenz of the Abongo of the Okande district, who are akin to Du Chaillu's Obongo of Ashiraland, and whom he speaks of as "physically and mentally degenerate[1]," is by no means applicable to the Negritoes in general. They are in no sense a degraded race fallen from a higher state, but obviously a small people arrested in their upward development probably by an adverse environment. From time immemorial

The Akkas.

AKKA OF MANGBATTULAND.
(*African Negrito Type.*)

their home has been the great forest zone of Central Africa, where the original yellowish brown complexion may have been preserved, and where a short stature would be an advantage to a race living entirely by the chase, and thus compelled to pass their lives flitting about amid the tangled coils of tropical woodlands.

E. G. Dönnenberg, the only European who claims to have actually seen the Mauritanian dwarfs, speaks of them as "about four feet high, robust and well-made, and certainly not Moors or Berbers whose growth had been stunted by rickets, as they differed altogether from the other inhabitants of Marocco in

[1] "Physisch und geistig degenerirt" (*Skizzen aus W. Afrika*, Berlin, 1878, ch. VI.). It is noteworthy that these Abongo are stated to be "very dolichocephalous" and of a "somewhat light chocolate-brown colour," whereas the Negritoes are normally brachycephalous and yellowish.

physical appearance." Junker's Wochua, south of the Akkas, are stated to be "well-proportioned, though the oval-shaped head seemed somewhat too large for the size of the body. In the upper jaw the facial angle showed a high degree of prognathism, and in those of lighter complexion the crisp hair was of a dark, rusty brown hue.... Hands and feet are of elegant shape, the fingers long and narrow, with relatively large nails. I found no trace of steatopygia and some other features characteristic of the Hottentots. All things considered, the Wochua must be regarded as normal (healthy) members of a wide-spread race of remarkably short stature, but otherwise fairly well-proportioned and well-developed. Hence they cannot be described as a morbid, degenerate people, as appears to be conjectured by Professor Ratzel[1]."

The Batwa.

A very full account is given by Dr Ludwig Wolf of the Batwa, who may be taken as typical members of the Negrito family south of Congo. Here they occupy numerous village settlements in the Sankuru and other river valleys, such settlements being met especially in the forest glades of districts inhabited by the Bakubu Bantus. They display wonderful agility both in climbing palm-trees to extract the sap, and in setting traps for game. In the chase they bound through the tall herbage "like grasshoppers," attacking the elephant and even the buffalo with their tiny arrows and darts. They are well made with absolutely "no deformity," averaging about 4 ft. 3 in. in height, with yellow-brown complexion distinctly lighter than that of their Bantu neighbours, short woolly hair and no beard. Dr Wolf unhesitatingly connects them both with the northern Akkas and with the southern Bushmen[2], all being the scattered fragments of a primeval dwarfish race, who are to be regarded as the true autochthones of equatorial Africa.

The Bushmen.

But whatever be their ethnical relation to the equatorial Negritoes, there can be little doubt that the Bushmen[3] constitute the aboriginal element in the whole of

[1] *Travels*, III. pp. 84–5.

[2] "Nicht zweifelhaft erscheine" (*Im Innern Afrikas*, pp. 258–61).

[3] This term, which of course has no ethnical value, has been adopted by the English from the Dutch *Bosjesman*. The scattered groups have no general

South Africa at least as far north as the Zambesi. Here they have been gradually driven to their present domain, the Kalahari Desert north of the Orange River, and Great Bushman Land, south of that river, by the Bantu populations advancing southwards from the interior of the Continent. In some of their physical characters, as well as in their speech, they resemble the Hottentots, of whom some ethnologists regard them as a degraded branch, while others look on the Hottentots as a mixed race, resulting from unions between the Bantus and the Bushmen. Either view would satisfy many of the actual conditions, though it seems probable that they have suffered degradation in their present environment, where they have been hunted down like wild beasts by Boers and Bechuanas alike, and where they find little to live upon except game, snakes, lizards, locusts, roots, bulbs and berries. At times they pass several days in search of food, on which, when found, they gorge themselves, five persons devouring a whole zebra in a couple of hours. Their weapons are the bow and poisoned arrow; their dress the untanned skins of wild beasts when procurable; their dwellings either the cave, or a kind of "nest," formed by bending round the foliage of the *bosje* (bush), whence their Dutch name. They are grouped in small bands without any hereditary or elected chiefs, and consequently with no social organization. Even the family tie has become extremely loose, unions being of the most transitory nature.

Yet, debased as they are almost to the lowest level of culture compatible with existence, the Bushmen are remarkably intelligent, and possess a sense of art far higher than that of the surrounding populations, as shown by the rock paintings of men and animals true to life found in their caves, and recalling the analogous representations of the Dordogne troglodytes. These rock drawings and paintings "differ much in aim and character. A large portion are of a caricature class, rudely but very spiritedly drawn in black

designation, but call themselves *Kwai*, which answers to the Hottentot *Khoi*, "Men," and which supplies the plural postfix *kwa*, as in *Saan-kwa* (*San-kwa*, *Soan-kwa*), the name by which the Bushmen are known to their Hottentot neighbours. Cf. the Hindi *lóg*, "people," also used colloquially as a personal plural ending, as in *Admi-lóg*, *Mard-lóg*, &c. According to Hahn, the word *San* means native, hence *San-kwa* = Aborigines.

paint. The class representing fights and hunts is a large and interesting one....Many of the drawings are representative of figures and incidents among white people, also of other native tribes. Some even suggest actual portraiture. The ornamentation of the head-dresses, feathers, beads, tassels, &c., seems to have claimed much care, and to have given the native artists great pleasure in delineation. The higher class of drawings will be seen to indicate correct appreciation of the actual appearance of objects; and perspective and foreshortening are found correctly rendered[1]." The Bushmen have also a rich oral folk-lore literature, consisting of legends, fables, and animal stories in which the animals are made to talk each with its proper *click*, not otherwise heard in ordinary Bushman speech. These clicks, inarticulate sounds unpronounceable by Europeans, are peculiar to the Bushman and Hottentot languages, the former possessing six, the latter four, three of which have been borrowed by the Zulu-Xosas, who have been for ages in close contact with both races.

The Kalahari Bushmen are described as taller and altogether a finer race than those of Cape Colony. But reports vary; nor is it always easy to sift the evidence, for the term "Bushman" is often applied in a very loose way to dispossessed Hottentots, half-castes, or broken tribes owning neither flocks nor herds. "The Bushmen in Bechuanaland in the present day are following their masters' lead in the ways of civilisation. They are employed as herds and waggon servants, and on our recent journey to Shoshong we found on entering Khama's country that the chief had entrusted a flock of goats to the Bushmen who were living at Mamabula. In the heart of the Kalahari the vassals have flocks of goats of their own, while they herd also the flocks of their masters[2]."

The Hottentots.

Although the affinities between the Bushmen and Hottentots, both in physical type and speech, seem to be fundamental, the former present some sharp contrasts, especially in their more animated expression, their more furtive glance and more agile movements. The Bushman

[1] *Notes on a Collection of facsimile Bushman Drawings*, by Mark Hutchinson, *Journ. Anthrop. Inst.* 1882, p. 464.

[2] Rev. J. Mackenzie, *Blue Book*, 1885, p. 63.

in this respect may be described as mercurial, the Hottentot as leaden, and the distinction applies with equal force to their mental qualities. Hence although occupying a much lower position socially, the Kwai appear to be endowed with a greater share of natural intelligence, and H. H. Johnston, like other observers, was much struck by the "mental ability" of the race, so "strangely at variance with their low physical characters[1]."

All things considered, it seems safe to regard the Hottentot[2] as an intermediate form between the Bushman and the Negroid Bantu, but much more closely connected with the former than with the latter. This is seen, not only in their common speech, but also in their common yellow or yellowish brown colour, their abnormally prominent cheek bones, giving a triangular shape to the face, and some other peculiar racial characters, of which the *tablier* and *steatopygia* of the women are the most remarkable. But for the fact of their eugenesis both with Bantus and Europeans these traits might almost be regarded as specific, both appearing earlier in life and in a more exaggerated form in the Bushman, that is, the assumed original stock. In other respects the Hottentots are tall compared with the Bushmen (5 ft. 4 or 5 in. and 4 ft. 8 in. respectively), with disproportionately small hands and feet (like the Negritoes), feeble muscular development, very broad flat nose, slightly oblique and deep-sunk eyes set wide apart, pointed chin, large lobeless ears, large mouth with thick pouting lips, pronounced prognathism (64 to 70), highly dolichocephalic head with very low cranial capacity (1290, Broca)[3], short black woolly hair. The famous "Hottentot Venus" examined by Cuvier, was really a Bushman woman, and consequently presented all these characters in a marked degree. "She had a way of pouting her lips exactly like that we have observed in the orang-utan. Her movements had something abrupt and fantastic,

[1] *Jour. Anthrop. Inst.* 1883, p. 463.

[2] *Hottentot* appears to be an onomatopœic term invented by the early Dutch settlers to imitate certain recurrent sounds in the native language. Like their Bushman kinsmen, the people call themselves *Khoi*, "Men," or more fully, *Khoi-Khoin*, "Men of Men," and in some districts *Hou-Khoin*, "True Men," men in a preeminent sense.

[3] Dr Hermann Welcker gives for ten Bushmen 1240, but for ten Hottentots 1369, which is higher than for many Negroes (*Archiv für Anthrop.* XVI.).

resembling those of the ape; her lips were monstrously large... I have never seen a human head more like an ape's than that of this woman[1]." This Hottentot Venus had a rival in prehistoric times in the "Vénus de Brassempouy," whose ivory statuette with several others was lately found in the undisturbed Quaternary deposits of the *Grotte du Pape* at the station of Brassempouy in the Chalosse district, Landes. M. Ed. Piette, one of the explorers of the cave, describes these exceedingly realistic works of art as exhibiting physical characters (pronounced steatopygia and other features) analogous to those of the ancient inhabitants of Púnt (Somaliland?) and of the present Bushman race. Whence, he asks, came these palæolithic cave-dwellers, who were also distinguished by great hairiness, thick lips, the upper overlapping the lower, receding chin like that of the Naulette skull, and a remarkable development of fatty growth and excrescences about the pelvic region. "In quaternary times branches of the stock to which they belonged must have covered the whole of Africa and a part of Europe. In the Pharaonic epoch they were probably already extinct in Europe; but the allied races, although driven back and in a decrepid state, still occupy vast spaces from Somaliland to the Cape. The Egyptians, who knew them, have left us the portrait of the women of Púnt, noted for their *gibbosités fessières*. At present the adipose races are everywhere dying out, despite the taste of the Negroes, and even of the Berbers for voluminous forms. The Somali and the Bushmen still persist, though their inferior qualities place them at the lowest rung of the social ladder[2]."

Past and present Hottentot-Bushman domains.

Whatever is to be thought of this prehistoric diffusion of the Bushman or allied peoples, the former presence of the Hottentot-Bushman elements all over South Africa is proved by the geographical nomenclature of the regions now occupied by the intruding Bantus. Thus the names of most water-courses contain some dialectic form of the word *ib* (*ob*, *eb*, *ap*, *iep* &c.), which in

[1] Cuvier, quoted by Topinard, *Anthropology*, Eng. ed., pp. 493–4.

[2] *La Station de Brassempouy et les Statuettes humaines de la période glyptique*, in *L'Anthropologie*, March–April, 1895.

Hottentot means "water," or "river," as in *Gar-ib*, "Great Water" (the Orange River), *Hyg-ap*, *Nos-ob*, *Mol-op(o)*, and others. The *Wak-Wak* of Edrisi's map (1154), which has so greatly puzzled historical geographers, is obviously the Bushman *Kwa-Kwa* (*Kwai-Kwai*), showing the presence of these aborigines on the east coast south of Sofala, whence "long before the Portuguese circumnavigation of Africa they were driven back by Kafir tribes[1]."

Owing to these encroachments, continued for centuries, the Hottentot domain had been confined to the south-west corner of the Continent at the arrival of the first Dutch settlers in the 17th century. Since then it has been further reduced and broken into fragments by the development of European colonisation, so that at present the race is mainly represented by about 20,000 Namas, who give their name to Great and Little Namaqualand[2], and who can alone be regarded as full-blood Hottentots. All the other groups, Hill Damaras, Koranas of the Upper Orange basin, Griquas of Griqualand West and East, and Gonaquas about the Kafirland frontier, numbering collectively about 180,000, are either Hottentot-Dutch or Hottentot-Negro half-breeds mostly of Dutch speech. The Namas alone still speak Hottentot, which is specially remarkable as one of the few languages of non-Caucasic peoples possessing grammatical gender and relational suffixes scarcely to be distinguished from true inflections. It shows no affinity to any other tongue except Bushman, although Lepsius felt inclined to group it with Ancient Egyptian on the ground of its highly developed grammatical forms.

[1] Dr Lichtenstein, *Reisen*, I. p. 400. So also Adelung and Vater: "Für gewisse Gegenden ist diess völlig erweislich, indem Berge und Flüsse des Landes, wo jetzt die Koosa [Ama-Xosa] wohnen, in ihren hottentotischen Namen den sichern Beweis an sich tragen, dass sie einst ein bleibender Besitz der Hottentoten gewesen sind" (Berlin, ed. 1812, III. p. 290).

[2] The *qua* of *Namaqua* is the above explained plural ending *kwa*. *Damaraland* farther north, which takes its name from the Dama-Herero (Hottentot-Bantu) half-breeds, should be *Damaqualand*. The *ra* is really a feminine dual form, so that Damaraland means literally "the land of the two Dama women." When the first explorers reached that region they asked its name, to which the guide answered *Damara* in reference to two native women visible at the time in the distance.

The Oceanic Negritoes.

As already seen de Quatrefages assigns a vast domain to the eastern (Indo-Oceanic) Negritoes, whom he represents as having left traces of their presence "depuis la Nouvelle-Guinée jusqu'au Golfe Persique et des archipels malais au Japon," besides forming the substratum of the Dravidian and other populations in India and along the southern slopes of the Himalayas[1]. But, apart from vague references to Asiatic "Ethiopians" in Persia by Ctesias, Pliny, and other ancient writers, and to a dark element in Indo-China by the Chinese records, there is no proof at all of distinctly Negrito populations anywhere on the Asiatic mainland, except in India and the Malay Peninsula, precisely the very regions where they might be looked for. During his eastward migrations from the subsiding Indo-African Continent, primitive man would necessarily reach both of these regions, India directly, the Malay Peninsula through the Eastern Archipelago at that time forming part of the mainland, from which it is even now separated only by shallow waters scarcely fifty fathoms deep. Southern India itself is merely "the eastern half of a once more extensive land area," the gradual subsidence of which "took place during the last great period of earth-movements," which began towards the close of the miocene, and which "reached their maximum in the pliocene period[2]," thus giving time for pliocene man to reach the Indian mainland. Hence the now generally admitted black substratum, forming the autochthonous element in that region, is no more than might be expected. Yet the real character of this element has given rise to much controversy, and owing to the absence of distinctly woolly hair, marked prognathism and brachycephaly amongst the low-caste aborigines of the Deccan, many ethnologists still deny the presence of true Negritoes in the peninsula. "Mop-heads" somewhat of the Papuan type are shown in a group of Veddahs of Ceylon photographed by M. de la Croix and reproduced by de Quatrefages (II. p. 318). But it may be doubted whether any woolly hair, such as is common to all known African and Oceanic Negritoes,

The Black element in India.

[1] *Races Humaines*, II. p. 351.

[2] R. D. Oldham, *The Evolution of Indian Geography*, *Jour. Geo. Soc.* March, 1894, pp. 176–7.

has yet been seen in India proper. "The hair," writes Mr James Dallas, "is also black, but has never been stated with certainty to present the woolly character of the Negro; but I would mention that to the best of my belief I have myself seen natives of India with unquestionably woolly hair. The reiteration of the contrary statement has, however, so unsettled my mind on the subject that I should now be loth to pronounce with certainty upon so simple a question[1]." Fr. Müller also tells us that "mention is everywhere made of crisp ("gekräuselte") often even of woolly hair[2]"; but the statement is too vague to decide anything. On the other hand E. Callamand describes the hair of the Mundas (aborigines of Bághalpúr) as "tantôt lisses et raides, tantôt frisés," and this authority asserts that no woolly hair has yet been found in India, with a single doubtful exception; he adds that the blacks of India are far removed from the brachycephalous Negritoes[3]. Still more conclusive is the evidence of F. Jagor and G. Koerbin, who made a careful study of 254 members of 54 low-caste and out-caste tribes of the Madras presidency, but failed to discover any woolly hair, all being either *schlicht* (straight), *wellig* (wavy) or at most *kraus* or *gekräuselt* (crisp or curly). The colour of the skin was mostly very dark, but never quite black, the darkest being "a somewhat shiny grey-black[4]." Three only of the heads were brachycephalous, all the rest being either dolicho-, sub-dolicho- or even per-dolichocephalous, so that, all things considered, the dark element in India would appear no longer to represent the original reddish-haired yellowish Negrito, but an intermediate form between that type and the Papuan, generally modified by later intruding Kolarian, Dravidian, and Aryan populations[5]. Referring to the

[1] *Jour. Anthrop. Inst.* 1885, p. 308.

[2] *Ethnographie*, p. 139.

[3] *Le Crâne des Noirs de l'Inde*, in *Rev. d'Anthrop.* Oct. 1878, pp. 607–625.

[4] *Zeitschrift für Ethnologie*, 1887, Part I. "Das ganz glänzende blauschwarz vermisse ich," the nearest being "ein etwas glänzendes grauschwarz."

[5] It is noteworthy that M. Rousselet's portrait of a Jangali (properly Juang) approaches the Oceanic Papuan in the development of the nose and superciliary arches more closely than that of any other Continental dark type. These "Jungle people" who are said by Dr Caldwell to be the most primitive tribe in all India, live in the forest district a little north of Cuttack. They are represented by one skull in the Barnard Davis collection.

worthless nature of the evidence relied on by de Quatrefages (in his work on the Pygmies) for the former wide-spread diffusion of the Negrito element, the late Professor V. Ball declares that he never met the slightest trace of this element amongst the numerous tribes visited by him "during many years' travelling in the hilly tracts of Western Bengal, the Central Provinces and the Northern Provinces of Madras. Individuals belonging to different tribes with curly, not really woolly, hair, are occasionally to be seen; but I venture to think that such occasional freaks are casual, wholly without significance, although they were regarded as evidence of a Negroid element in the population by the late Sir George Campbell[1]."

The Oceanic Negrito Groups.

Hence we should no longer speak of Indo-Oceanic, but only of Oceanic, Negritoes, and even these differ in one material respect from their African congeners. The original yellowish brown colour of the skin appears to have everywhere given place to various shades of dark brown and black, as amongst the surrounding Papuan populations. The Oceanic is even more fragmentary than the African domain, and the true Negrito element, formerly widespread throughout Malaysia, is now confined to the Andaman Islands, the Malay Peninsula, the Philippines and parts of New Guinea. A detailed description of the several groups would be foreign to the purpose of this broad classification, and a general survey with a view to establishing their racial unity must suffice.

The Andamanese.

The Andamanese islanders, formerly spoken of as "Mincopies," present what Flower calls an infantile Negro type[2], although in respect of stature they stand at the head of all Negrito peoples, averaging about 4ft. 10in. Mr E. H. Man, who has made a special study

[1] *Nature*, May 23, 1895, p. 80.

[2] *Osteology and affinities of the Natives of the Adamanese Islands*, in *Jour. Anthrop. Inst.* 1879, pp. 132–3. Here the Andamanese cranium is shown to be "as distinct as possible" from the Melanesian, and these islanders are spoken of "as representing an infantile, undeveloped or primitive form of the type from which the African Negroes on the one hand, and the Melanesians [Papuans] on the other...may have sprung," exactly in accordance with the views here advocated.

of this race[1], describes them as a homogeneous people, everywhere presenting the same uniform Negrito characters, short woolly black hair, very dark, almost black complexion, somewhat softened or undeveloped Negro features. They occupy a very low social state, living almost exclusively by hunting and fishing, in isolated groups of 50 to 80 persons, who wear scarcely any clothing and form both permanent and temporary encampments of wood huts, varying in size and durability. They have names only for one and two, although able to count with the fingers up to ten, and otherwise show a considerable degree of intelligence as well as great affection for their women and children. Their social condition lends no support to the "cattle-herd" theory (p. 14), and the ferocious character formerly attributed to them is shown to be the reverse of the truth, and based on misunderstandings between them and strangers visiting the islands sometimes to kidnap the natives and sell them as slaves in the Malay markets. Since the British occupation and the establishment of penal settlements in the archipelago a mixed breed has sprung up, while the full-blood aborigines appear to be dying out, numbering at present (1891) less than 4,000. The language, of which there are two distinct branches, is entirely unlike any other known form of speech, although in its morphology presenting certain analogies both to the Dravidian of India and to the Australian family.

The Negritoes of the Malay Peninsula.

Geologically the archipelago is connected with the opposite mainland, so that migrations were formerly possible to the Malay Peninsula, where several small groups of Negrito aborigines still survive. The Sakais, Samangs, Jakuns, or Orang Benúa ("Men of the Soil") as they are variously called by their Malay neighbours, are indeed more numerous than was formerly supposed, and, according to the Penang Administration Report for 1890, there may be over 5,000 in the Ulu Pahang district alone. Here they form two distinct tribes, calling themselves Sen-oi and Tem-be, living for the most part in small groups of from two to three families, with little social organization. They speak a stock language, of which till recently little was known beyond the fact that it possesses

[1] In a series of papers contributed to the *Jour. Anthrop. Inst.* 1882–83.

SAKAI OF MALAY PENINSULA.
(*Oceanic Negrito Type.*)

SAMANG OF MALAY PENINSULA.
(*Oceanic Negrito Type.*)

names only for the first three or four numerals. But Mr Hugh Clifford has now made a study of the Sen-oi dialect, of which he publishes a glossary and grammar, with phonetic rules, showing no connection with any other known language[1]. There is almost everywhere much mixture with the surrounding Malay populations, resulting in many transitional forms. But the full-blood aborigines, as studied by Miklukho-Maclay, present the true Negrito type, even in an exaggerated form, with black woolly hair, disproportionately large round head, and extreme prognathism. "This people undoubtedly belongs to the Melanesian stock[2]." Special features are a very crisp black beard, a "third eyelid" or inner fold as in the Mongolic group, and the position of the three outer toes, which are turned obliquely towards the two inner, as in so many apes. This observer tells us that the Malays distinguish two groups, the Orang-Sakai-Liar, who are quite wild, keeping entirely aloof in the recesses of the forests, and the Orang-Sakai-Diná, who associate freely with the settled communities. One of Maclay's three photographs is described by Giglioli as presenting "a highly remarkable exaggeration of the bestial characters, exceeding even the Kalang of Java in its prognathism...a real chimpanzee profile and I believe the highest degree of prognathism possible in a human being[3]."

The Negritoes of the Philippines

Like those of the Malay Peninsula, the Negritoes of the Philippines, collectively known as Aetas[4], are shown by Dr Blumentritt to be far more numerous than is commonly supposed. It also appears from Montano's recent explorations in Mindanao that they are very numerous

[1] *Jour. Straits Branch R. As. Soc.* No. 24, 1892.

[2] *Ethnological Excursion in Johor.* By "Melanesian" is here to be understood "Negrito," the Russian traveller habitually using the former term in a general way for all the dark Oceanic populations.

[3] "L' ultimo limite al quale possa giungere il prognatismo in un essere umano" (*Nuove notizie sui Popoli Negroidi dell' Asia e specialmente sui Negriti*, Florence, 1879, p. 7).

[4] This term, which occurs in a great variety of forms—*Aeta*, *Aita*, *Atta*, *Ate*, *Eta*, *Ita*, &c.—has in the Tagala language the meaning of "black," being cognate to the Malay هيتم (hétam). Like the corresponding *Mamánua* ("Aborigines"), it is applied both to the full-blood and to the half-caste Negritoes.

in that large island as well as in some other districts, where their presence had not previously been suspected. But they are not always easily distinguished from the surrounding populations, many having adopted the dress and usages of the Malay intruders. Like the Sakais, many of the Aetas have formed close unions with these Malays, giving rise to various shades of transition between the two races, as shown in Dr A. B. Meyer's *Album von Philippinen-Typen*, Dresden, 1885. Many of the photographs in this

AETA WOMAN OF LUZON, PHILIPPINE ISLANDS.
(*Oceanic Negrito Type.*)

collection are those of full-blood Aetas from Luzon and other parts of the Archipelago, showing the woolly hair, crushed nose, broad at base, deeply depressed at root, thickish and everted under-lip, sunken eyes set wide apart, long arms, slender extremities, and wild look of the true Negrito. Some, especially of the children, have a distinct Negro expression, heightened by the low bulging frontal bone, so that they might well be taken for natives of Central Africa. In several a transition may be suspected between the Negrito proper and the Papuan, as might be expected from the position of the Archipelago on the confines of the respective domains. The same inference may be drawn from the physical appearance of the Karons, a group of Negritoes visited in 1879 by M. Raffray, in the Arfak Hills, North-West New Guinea[1]. All alike are extremely rude, dwelling in wretched hovels of foliage and branches

and New Guinea.

[1] *Tour du Monde*, XXXVII.

and in some districts with no habitations, wearing no clothes beyond a few strips of bark dangling from a string round the loins, and (the Karons) addicted to cannibalism. "In the pure Negrito the height is said to average 4 ft. 10 in., but Semper's estimate is two or three inches less. The skull is brachycephalic, the chest small, the legs without calves, and the feet turned inwards. Their prognathous and deeply-lined faces give them an ape-like appearance. The nose is broad and flat, and the nostrils

AETA WOMAN OF LUZON.
(*Oceanic Negrito Type.*)

dilated, and the slender build and small size of the body cause the head to appear disproportionately large...Their intelligence is of a very low type, and according to Montano they are unable to count above five...They are monogamists without exception... Mr J. Barnard Davis, from the examination of three fine crania, considers the Negrito to be distinct from any other race[1]."

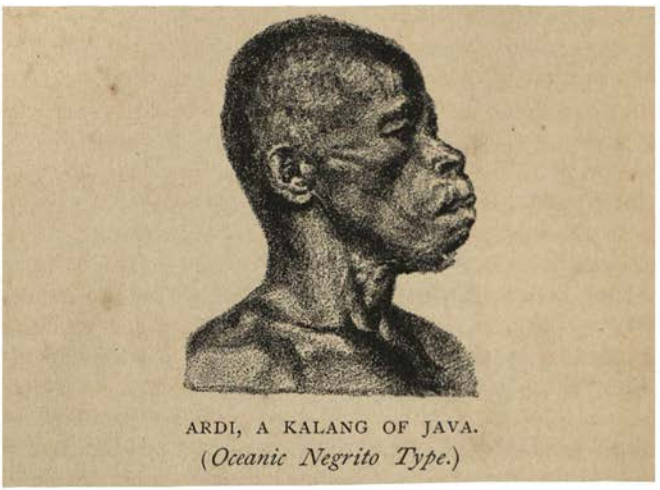
The Negritoes have left no traces of their presence in Formosa, if they ever reached that island, or in any other part of Oceanica[2]

[1] Dr F. H. H. Guillemard, *Australasia*, vol. II. (Stanford Series, new issue) 1894, pp. 47–9.

[2] It should, however, be stated that during his scientific mission (1890–93) to Malaysia and Polynesia, Dr H. ten Kate collected what he considered

except Java, home of the recently extinct Kalangs, in some respects the most ape-like of human beings. This may be inferred from the startlingly simian expression of Ardi, almost the last of his race, who lately died at Buitenzorg near Batavia, and of whom photographs have been preserved. Such a juxtaposition will cause no surprise, when it is remembered that Java must have been one of the first regions

The Negritoes of Java.



ARDI, A KALANG OF JAVA.
(*Oceanic Negrito Type.*)

reached by primitive man and his miocene precursor during their eastward migrations from the subsiding Indo-African Continent. Dr A. B. Meyer, who devotes a monograph to the subject[1], speaks of a few of the Kalang tribe as still surviving, and Van Musschen-

strong evidence of the former presence of Negritoes in Timor and the neighbouring islets of Samu, Roti and Savu, and especially in the Hokor district, Flores. From the appearance of the natives he infers that Timor was originally occupied by Negritoes, who were afterwards reduced and absorbed or exterminated by later Papuan intruders. He thinks with Crawfurd that here have been developed transitional types, the Negrito element prevailing in the west, the Indonesian in the centre of the island, though it is not quite clear what meaning this observer attaches to the term "Indonesian" (*Tijdschrift van het Kon. Nederl. Aardrijkskundig Genootschap*, Leyden, 1894).

[1] *Die Kalangs auf Java*, re-issued from the *Leopoldina*, August 1877.

broek, to whom we are indebted for Ardi's photographs, informed Prof. Veth of Leyden, that "he has met with the same type in other parts of Java, though not so pronounced, and that it could always be traced to a Kalang origin[1]." That they were the aborigines of Java gradually exterminated by the intruding Malays is not disputed, while Van Musschenbroek regarded them as akin to the other Negritoes of Malaysia. There could be no doubt on this point, but for the fact that when the photograph was taken Ardi's head was shaven, and since then Prof. O. Beccari, who saw him in 1878, found that the fresh growth was *smooth*, not woolly or frizzly, as had been expected[2]. What, then, is to be said of this Simian group, which is certainly not Malay, and presumably not Negrito? It has been shown that the precursor was most probably furry, with a woolly under and a sleek outer coat, and it is conceivable that in a volcanic environment like that of Java it might have been advantageous to shed the wool and retain the sleek hair, together with all the other physical characters of the primitive Negrito. Analogous processes are common enough especially amongst the ovidæ, the European sheep changing its wool to hair in tropical lands, while in Sierra Leone all acquire black heads in a single generation[3]. No doubt the character of the hair, fixed by long ages, is now extremely persistent in the human varieties; but it may have been less stable at an earlier period of their evolution. In any case it is readily modified by miscegenation, which might also be suspected amongst the moribund Kalangs now dispersed as menials and artisans amid the Malay populations. Only in that case the doctrine of correlation of parts would lead us to expect corresponding modifications in the other characters.

The Negro Divisions.

Passing from the Negrito to the Negro proper, the most important point is the now established physical identity of the African and Oceanic branches. The evidence bearing on this question has been summed up in a masterly manner by de Quatrefages, from whose com-

[1] Letter to A. H. Keane, Oct. 16, 1880.

[2] "I suoi capelli, cresciuti da quando fu fotografato, *sono lisci*" (E. H. Giglioli, *loc. cit.*, p. 7).

[3] Winwood Reade, *The African Sketch-book*.

parative craniological tables[1] are taken the subjoined broad results:—

	Cranial Capacity	Cephalic Index	Facial Index	Nasal Index
S. W. Sudanese	1300 cc.	69·78	71·09	54·00
S. E. Sudanese	1355	71·66	71·09	54·16
Mandingans	1460	72·82	68·18	54·00
Serrers	1490	69·79	72·51	54·54
Krumen	1445	72·28	69·16	51·92
N. W. New Guinea	1305	71·11	71·42	55·10
S. E. New Guinea	1385	71·89	69·92	53·56
New Hebrides	1485	68·42	69·69	54·16
Loyalty Is.	1460	69·84	68·38	51·92
New Caledonia	1445	69·66	67·40	52·47
Africans (mean)	1424·2	71·23	70·04	54·49
Papuans ,,	1412·5	70·38	68·87	53·03

When to these anatomical resemblances are added such outward characters as a normally dark complexion, hair uniformly black and either frizzly or woolly in texture, the parallelism seems complete. Yet there are differences, such as the shorter stature, larger nose often arched and with downward tip, and generally milder expression of the Papuans, by which they may nearly always be distinguished at a glance from the African blacks.

But the independent and simultaneous evolution of two types so nearly alike on either side of the Indian Ocean remains a remarkable phenomenon, which seems more than a mere coincidence, especially when the similarly independent or apparently independent evolution of two Negrito sub-types in the same regions is borne in mind. The explanation seems to be that both were already partly developed in the common centre of evolution, and after the dispersion east and west continued their evolution in the direction already taken. Then the observable differences would readily be accounted for by the influences of the different environments, both tropical, but one mainly continental, the other mainly Oceanic.

These differences are even more marked in the mental than in

[1] *Races Humaines*, II. pp. 319–20.

the physical order. In some respects there is perhaps not much to choose between the two. Cannibalism was at no very remote period universal in both areas, although probably of a milder character in the east than in the west, where even since the "Partition" scenes of incredible brutality and atrocity have been witnessed in the Congo basin[1]. But the Papuan stands intellectually at a somewhat higher level than the African. He is less of an "overgrown child," more capable of social progress, less grossly superstitious, and possesses a much higher sense of Art, as seen by the splendid ethnographic collections recently made in the western parts of New Guinea by the agents of the Dutch Government[2].

The African Negro unprogressive.

Reference has already been made (p. 44) to the apparent incapacity of the full-blood African Negro to make any permanent advance beyond his present normal condition without extraneous aid. In fact without miscegenation he seems to have no future, a truth which but for false sentiment and theological prejudice would have long since been universally recognised. Commissioner H. H. Johnston, than whom no better authority could be appealed to, fully agrees with the Negro writer who holds that "the pure and unadulterated Negro cannot as a rule advance with any certainty of stability above his present level of culture; that he requires the admixture of a superior type of man." But the white and black races "are too widely separated in type to produce a satisfactory hybrid." Hence he thinks that "the admixture of yellow that the Negro requires should come from India, and that Eastern Africa and British Central Africa should become the America of the Hindu. The mixture of the two races would give the Indian the physical development

Testimony of H. H. Johnston,

[1] The French explorer M. Fondèse speaks of paddocks where "human cattle" were kept and fattened for the market, like stall-fed oxen. These were to be seen in almost every village in the Ubangi valley, and so resigned were the victims to their fate, that they actually refused the chance of freedom offered them by M. Fondèse.

[2] F. S. A. De Clercq and J. D. E. Schmeltz, *Ethnographische Beschrijving van de West- en Noordkust van Nederlandsch Nieuw-Guinea*, 1893. To these have now (1895) been added the collections made especially by Prof. A. C. Hadden in British New Guinea.

which he lacks, and he in his turn would transmit to his half Negro offspring the industry, ambition, and aspiration towards a civilised life which the Negro so markedly lacks[1]."

In reply to those who attribute the backward state of the African Negro to baneful European and Mohammadan influences, it may be pointed out, first that Islám has on the whole been far more beneficial than injurious, as shown by the superior condition of those Sudanese populations, such as the Mandingans, Hausas and Sonrhai, who have been long in association with the Arab and Berber intruders; second, that the social status of the Negro masses is antecedent to all contact with European or any other foreign peoples. As already explained, their inherent mental inferiority, almost more marked than their physical characters, depends on physiological causes by which the intellectual faculties seem to be arrested before attaining their normal development.

of Manetta,

Even in the Southern United States under the plantation system Filippo Manetta noticed that "the Negro children were sharp, intelligent, and full of vivacity, but on approaching the adult period a gradual change set in. The intellect seemed to become clouded, animation giving place to a sort of lethargy, briskness yielding to indolence. We must necessarily infer that the development of the Negro and White proceeds on different lines. While with the latter the volume of the brain grows with the expansion of the brain-pan, in the former the growth of the brain is on the contrary arrested by the premature closing of the cranial sutures and lateral pressure of the frontal bone[2]."

Has any real improvement taken place since the emancipation anywhere in the New World, where the conditions are more favourable than in the cradle of the race? After a lengthened experiment to raise the Virginian freedmen by education, involv-

of Col. Ruffin,

ing an expenditure of about £1,000,000, the late Col. Frank G. Ruffin finds the outcome to be that "so far from having been fitted by education for the discharge of civil or social duties, or from having been improved in conduct or

[1] *Report of the first three years' Administration of British Central Africa*, August 1894, p. 31.

[2] *La Razza Negra* &c., Turin, 1864, p. 20.

morals, they have absolutely deteriorated and have given no promise of amendment in any direction." This observer also notices "that negro children up to the age of puberty learn remarkably well, at least by rote, but after that period of life has been reached they became incurably stupid and make no further progress[1]." Hence "there has been no development of religious, intellectual, moral or industrial advancement in the Negro," who should be spoken of rather as *non-moral* than *immoral*, and who is here declared to be "a political idiot," an appreciation fully borne out by the results of a century of misrule amongst the freedmen and freemen of Hayti. Here the reversions to vaudoux and other pagan rites, to snake worship, cannibalism, and similar horrors are fully vouched for by Sir Spencer St John, who had official knowledge of these matters, and who after a residence of over twenty years in "The Black Republic" was fain to confess that the greater his experience the less he "thought of the capacity of the Negro to hold an independent position. As long as he is influenced by contact with the white man, as in the southern portion of the United States, he gets on very well [?]. But place him free from all such influence, as in Hayti, and he shows no signs of improvement; on the contrary he is gradually retrograding to the African tribal customs, and without exterior pressure will fall into the state of the inhabitants of the Congo. If this were only my own opinion, I should hesitate to express it so positively; but I have found no dissident voice amongst experienced residents since I first went to Hayti in January 1863[2]."

of Sir Spencer St John.

In Africa itself all social institutions are at the same low level, and throughout the historic period have made no perceptible advance except under the stimulus of foreign influences. Religion is a system of pure fetishism and ancestry-worship, associated with a universal belief in witchcraft and such sanguinary rites as those of the "customs" till recently practised in Dahomey and Ashanti. Slavery, where not checked by European governments, prevails everywhere both as a local institution and

Historic evidence.

Low state of Negro Culture.

[1] *The Cost and Outcome of Negro Education in Virginia*, Richmond, 1889.

[2] *Hayti, or The Black Republic*, 1884, p. 131.

a branch of the "export trade." The great bulk of the natives are still in the tribal state, while in the kingdoms founded in Upper Guinea, Ulunda, Buganda and elsewhere, the exercise of autocratic rule has nearly always been marked by the most wanton cruelties. The administration of justice is regulated, not so much by any sense of right or wrong, as by the caprice of the king, who is himself often in the power of the "witch doctor." Without external aid, no Negro people have ever reduced their language to written form, so that "literature" is purely oral, and limited to a few tribal legends, some folklore, proverbs, and songs of the simplest kind. The arts are restricted mainly to coarse weaving, pottery, agriculture, wood carving, and the smelting and working of iron and copper, in which alone real skill and originality have been displayed. Architecture has no existence, nor are there any monumental ruins or stone structures in any part of Negroland except those of Sudan and Matabililand erected under Arab and Himyaritic influences. "No full-blood Negro has ever been distinguished as a man of science, a poet, or an artist; and the fundamental equality claimed for him by ignorant philanthropists is belied by the whole history of the race throughout the historic period[1]." This is not the language of prejudice, of racial or religious bias, but the sober truth, frankly admitted by the Negrophiles themselves "behind the scenes." "In Massachusetts," writes Theodore Parker to Miss Hunt, "there are no laws now to keep the black man from any pursuit, any office that he will; but there has never been a rich Negro in New England... none eminent in anything except the calling of a waiter[2]."

[1] A. H. Keane, *Encyclopædia Britannica*, Art. *Negro*, 9th ed.

[2] Letter, Nov. 10, 1857, quoted by J. R. Maxwell, almost the only "Negro of pure descent," as he calls himself, who has ever written a book (*The Negro Question*, 1892, p. 36). Dr Blyden, author of *Christianity, Islam and the Negro Race*, is also a Negro, or at least Negroid. No other instance has been recorded, although it is claimed for the Vei people of the West Coast that, like the Cherokees, they have invented an alphabet. The matter is involved in some mystification and needs further inquiry before the claim can be admitted. In any case it appears that the Vei are a branch of the Mandingans, who have been subject to Arab and Berber influences for nearly a thousand years (Capt. Binger, *Du Niger au Golfe de Guinée*, 1892, II. p. 213).

On linguistic grounds the African blacks are conveniently grouped in two main sub-divisions, the northern SUDANESE, occupying a region of great linguistic confusion, and the southern BANTUS, amongst whom a remarkable uniformity of speech prevails everywhere, except in the now contracted Bushman-Hottentot area. Sudan, which in its widest sense comprises the whole region stretching from the Sahara towards the equator, and from the Atlantic to the Red Sea, has with some reason been always regarded as the true home of the African Negroes, and in fact was so named from them by the mediæval Arab writers[1]. This is the "Black Zone" in a pre-eminent sense, for here far more than south of the equator the Negro type is found in almost "ideal perfection," as amongst the Upper Guinea populations, the Serers of Senegambia, the Gallinas of Sierra Leone, the Sienufs within the Niger bend, the Mosgu of Lake Chad, the Fúr dominant in Dár-Fúr[2], the Kordofan Nubas, the Dinkas and Shilluks of the Upper Nile, the A-Barambo, Zandehs and other of the Upper Welle Basin. During his excursion up the Nile Valley, the eminent French anthropologist, Dr E. T. Hamy, examined several specimens of Sudanese and Nilotic natives, presenting the usual Negro traits, such as great prognathism, high dolichocephaly and hypsistenocephaly, slender legs without calves, broad flat feet and larkspur heel ("talons fortement saillants en arrière"), and comparing these with observations made in other parts, he was satisfied as to "the indissoluble unity of the Western and Eastern Sudanese, a unity since then definitely confirmed to my mind by a large number of anatomical facts[3]."

Two main sub-divisions, Sudanese and Bantu.

The Sudanese Negroes.

But although Negro blood is almost everywhere dominant, Sudan, taken as a whole, is far from a homogeneous ethnical region. The greater part of the lands between the Nile and the coast are comprised within

Mixed Sudanese Groups.

[1] The full expression is *Bilád es-Súdán* (بلاد السودان), "Land of the Blacks," whence the terms *Nigritia*, *Negroland*, figuring on all the old maps of Africa.

[2] Arab. *Dár*, country, region &c., of frequent occurrence in East Sudan: Dár-Fúr, Dár-Nuba, Dár-Fertit &c.

[3] *Rev. d'Anthrop.* 2de série, IV. 1881, p. 225.

the Hamito-Semitic domain; other Hamite and Semite (Berber and Arab) communities occur both in the east (Middle Nile, Kordofan, Dár-Fúr, Waday, Lake Chad), and in the West (within the Niger bend and Senegal basin), while the ethnical "divides" are everywhere occupied rather by mixed Negroid than by full-blood Negro peoples. Such are, going eastwards, the Senegambian Toucouleurs, the Sonrhay of the Middle Niger, the Central Sudanese Hausas, Bornus and Baghirmi, the Mabas of Waday, the Basé (Kunama), Barea, Shangalla and others of the Abyssinian slopes. The Basé, however, to judge from the figures reproduced by Mr F. L. James, represent an extremely low and even repulsive Negro type[1]. A difficulty is presented by the Fulahs, Mohammadan pastors, who were formerly dispersed in small communities throughout West and Central Sudan, but who, led by their warlike and fanatical chief, Othmán Dan Fodio, rapidly overran nearly the whole region between Lake Chad and the Niger, and after overthrowing the native Hausa States (1800—1810), founded the present "empire" of Sokoto, with the vassal kingdoms of Gando, Nupé, and Adamawa. By some they are classed with the Negroes, by others with the Tuaregs (Saharan Berbers), while others again have brought them all the way from Malaysia. But this is not necessary, and when studied in their original homes—the Futa-Toro and Futa-Jalon districts, Senegambia—the Fulahs are found, despite their present Negro speech, to be of Hamitic type, possibly representing the Leukæthiopi ("White Ethiopians") located by Pliny south of the Mauritanian Getulians. Grimal de Guirodon, who knew them well, describes the full-blood Fulahs as of reddish-brown or light chestnut colour, with crisp but not woolly hair, straight and even aquiline nose, regular features, and other characters separating them entirely from the Negro division[2]. Hence, despite Fr. Müller's "Nuba-Fulah Family," they have no connection either in type or speech with the black Nubas of Kordofan.

The Fulahs.

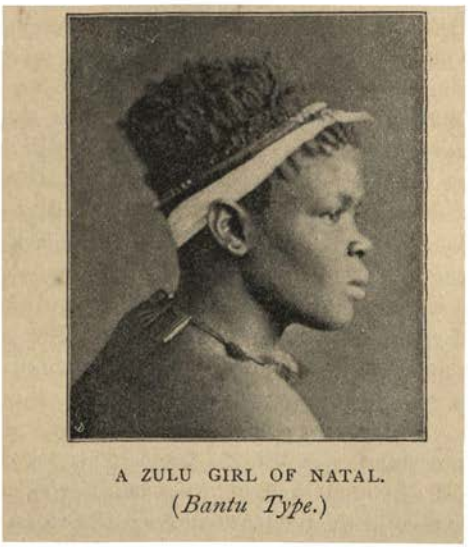
In the Bantu domain, which meets the Sudanese a little north

[1] *The Wild Tribes of the Soudan*, 1883; see especially the frontispiece, "A Basé Professional Beauty."

[2] *Les Puls*, 1887, *passim*.

The Negroid Bantus.

of the Cameroons on the west coast, and about the north end of Lake Albert Nyanza on the east side, there are certainly some groups about the Lower Limpopo, Lake Tanganyika, the Ogoway and Lower Congo basins, which it is difficult to distinguish physically from the true Negroes. But, speaking broadly, the Bantu populations show marked modifications of this type in their lighter colour, larger cranial capacity, smaller teeth and less pronounced prognathism.



A ZULU GIRL OF NATAL.
(*Bantu Type.*)

The Zulu-Kafirs.

They are also distinctly more intelligent, more civilised, and more capable of upward development than the full-blood Negro. The Zulu-Xosas (Zulu-Kafirs) of the extreme south-east, who stand out conspicuously in all these respects, are taken as typical members of the division, and from their language has been adopted the term *Bantu* (properly *Aba-ntu*, "people[1]") now used as the conventional name of all

[1] *Aba* is one of the numerous plural personal prefixes, each with its corresponding singular form, which are the cause of so much confusion in Bantu nomenclature. To *aba*, *ab*, *ba* answers a sing. *umu*, *um*, *mu*, so that sing. *umu-ntu*, *um-ntu* or *mu-ntu*, a man, a person; pl. *aba-ntu*, *ab-ntu*, *ba-ntu*.

African races of Bantu speech. These are essentially mixed Negroid peoples, the dominant element being undoubtedly the Negro, as shown by the universal prevalence of black woolly hair and dark complexion, besides gross superstitions associated with witchcraft of a specially Negro character. With the black substratum are intermingled Semitic (Arab) intruders on the east coast, and elsewhere most probably Hamites, chiefly Gallas, descending from the north-east. The so-called Wa-Humas, dispersed amongst the equatorial lake populations, with whom they are slowly amalgamating, are known to be Hamitic Gallas[1]. The founders of the Kitwara empire, now broken into fragments (Buganda, Bunyoro, Karagwé) were also Gallas, as is evident from the fact that Galla was the mother-tongue of the late King Mutesa of Buganda, a lineal descendant of the Kitwara dynasty. A distant branch of the same race are the fierce nomads of Masailand, east of Victoria Nyanza, though probably modified by a strain of black blood, and the same process of segmentation and infiltration has obviously been going on for ages, leavening the seething masses throughout the southern half of the continent, and raising them to a somewhat higher level than that of the full-blood Sudanese aborigines.

The Wa-Huma.

Hence in the Bantu domain every shade of transition is presented between the extreme Negro and Hamitic types; hence also the impossibility of determining a clearly marked Bantu physical type, so that this term has rather a linguistic than an ethnical value. It thus

The Bantu linguistic family.

But in some of the groups *mu* is also plural, the chief dialectic variants being *Ama*, *Aba*, *Ma*, *Mu*, *Ba*, *Wa*, *Ova*, *Va*, *Vua*, *Ua*, *U*, *A*, *O*, *Eshi*, as in *Ama-Zulu*, *Mu-Sarongo*, *Ma-Yomba*, *Wa-Swahili*, *Ova-Herero*, *Vua-Twa*, *Ba-Suto*, *Eshi-Kongo*. Equally numerous and perplexing are the class prefixes indicating speech: *Ki*, *Kishi*, *Di*, *Lu*, *So*, *Se* &c., as in *Ki-Swahili*, *Kishi-Kongo*, *Lu-Ganda*, *Se-Suto*, = the *Swahili*, *Kongo*, *Buganda* and *Basuto* languages. It would be well if the Swahili *Wa* and *Ki* were universally adopted, as is the practice of some writers.

[1] Thus Stanley speaks of the Wa-Kerewe islanders, Victoria Nyanza, as "a mixture of the Ethiopic [Hamitic] and Negro type" (*Through the Dark Continent*, I. p. 251), and in Usongora he met certain Wa-Huma chiefs who "were as like in features to the finest of the Somali types and Wa-Galla as though they were of the same race" (*In Darkest Africa*, II. p. 317).

corresponds to such names as Aryan, Mongolo-Tatar and Malayo-Polynesian, which similarly imply linguistic unity amid much physical diversity. As far as is known—and the region has now been almost everywhere traversed by explorers—all the innumerable dialects current throughout the Bantu domain are more or less closely related in structure, phonetics and vocabulary, and have all certainly sprung from a common Bantu mother-tongue, differing fundamentally from all other known forms of speech. This stock language is distinguished by some remarkable grammatical features, of which the most characteristic is a certain alliterative harmony, somewhat analogous to the vocal harmony of the Finno-Tatar, and the nominal concordance of the Aryan system. The alliteration is caused by the repetition, in a slightly modified form, of the same prefixed element before all words of the sentence in grammatical concord. Hence inflection in Bantu is mainly initial, not final, as in most other systems. All nouns are grouped in so many classes, according to their proper determining prefixes, of which there appear to have been at least sixteen in the organic Bantu language; it follows that all adjectives and other words dependent on the noun are liable in principle to sixteen initial changes, according to the several classes of nouns with which they may occur. Thus: *umu-ntu om-kulu*, a great man, but *in-kose en-kulu*, a great chief, where *kulu*, great, becomes *om-kulu*, *en-kulu*,... in agreement with *umu-ntu*, *in-kose*... Compare Lat. *domin-us bon-us*, *domin-a bon-a*, &c. The germs of this concordance, which gives the clue to grammatical gender in the inflecting orders, are found in Masai, Galla, Tibu and some of the Nilotic tongues. Traces of alliteration depending on the same principle occur also in some of the idioms of the Welle basin and elsewhere in the border lands between the Sudanese and Bantu areas. But the principle is fully developed only in Bantu, which would thus appear to have originated in the north, and to have spread thence with the prehistoric Hamitic (Galla) migrations throughout South Africa. How rapidly a Bantu language may be diffused by such migrations is seen in the case of the Makololos, a Basuto people who about 1825 moved several hundred miles northwards to the Zambesi, where they reduced the dominant Barotse nation and founded a powerful state under their renowned chief, Sebituane. Then the

Barotse suddenly rose (1864) against the intruders, exterminating them almost to a man, and restoring the old Barotse kingdom. But although the invaders have disappeared, their Sesuto language still survives as the current speech throughout the Upper Zambesi basin[1].

General Intermingling of the Sudanese and Bantu populations.

Throughout the historic period a great part of Negroland has been wasted by similar hostile movements, conspicuous amongst which were the widespread expeditions of the terrible Jagas in the 17th century. Scarcely less destructive were the kidnapping raids, dating back to the old Egyptian Monarchy, revived by the Western nations to supply the hands needed to work the mines and plantations in the New World, and continued down to the present time by the Arabo-Nubian slave-hunters and their native allies. The result was an incessant dislocation, breaking up and re-formation of the tribal groups, and a universal intermingling of the most diverse elements, so that the utmost ethnical confusion now prevails throughout both the Sudanese and the Bantu domains. In fact hopeless chaos would seem to have been prevented mainly by the principle of convergence, which continually tends towards uniformity of type in a given environment, thus to some extent counteracting the influences which tend in the opposite direction towards divergence. Hence the broad general resemblances already noticed in these regions, although even within comparatively narrow areas great diversity has often been observed by intelligent travellers. Thus Junker speaks of the "endless gradations of colour" on both slopes of the Nile-Congo waterparting, "ranging from the rarely-occurring deep black to a dark iron-grey, dark chocolate or roasted coffee-berry, light cigar, the yellow-brown of dressed leather, *café-au-lait*, and, in exceptional cases, the fair colour of the Malays." He adds that "red hair occurs both amongst dark and light peoples[2]," as in the other primary divisions.

How is it possible, after these long continued tribal interminglings, to speak of any scientific classification of the second-

[1] Livingstone, *Travels*; Holub, *Sieben Jahre in Süd-Afrika*, 1881.

[2] *Travels*, II. p. 240.

ary divisions? Refuge is naturally taken in differences and resemblances between languages, which, as seen, do not intermingle, and which under certain conditions may have some value. Thus the Gold and Slave Coasts are occupied by a considerable number of Negro tribes speaking three or four marked dialects of a common stock language—Tshi, Ga, Ewe, and Yoruba —and also, as shown by Ellis[1], presenting numerous points of resemblance in their physical characters, social usages, religion, traditions and progressive grades of culture. It seems reasonable in such cases to infer common genetic descent also. Analogous instances occur in other parts of Sudan, as amongst the Sonrhay, who may be traced by their speech from within the Niger bend eastwards to Asben, which district is known to have formed part of the powerful Sonrhay empire overthrown by Marocco in the 16th century. So with the Fulahs, who can be followed by means of their language throughout all their wanderings from near the Atlantic seaboard right across the Black Zone to Dár-Fúr, although no longer everywhere distinguishable by their physical features from the surrounding Negro populations. Hence in the subjoined Tables of the Sudanese and Bantu peoples, the groupings have necessarily to a large extent a linguistic base.

Hence Classification impossible except on a linguistic basis.

Tables of the Sudanese and Bantu groups.

SUDANESE[2].

Wolof, between Lower Senegal and Gambia; chief branch *Jolof*; very black, but somewhat regular features, showing Hamitic blood.

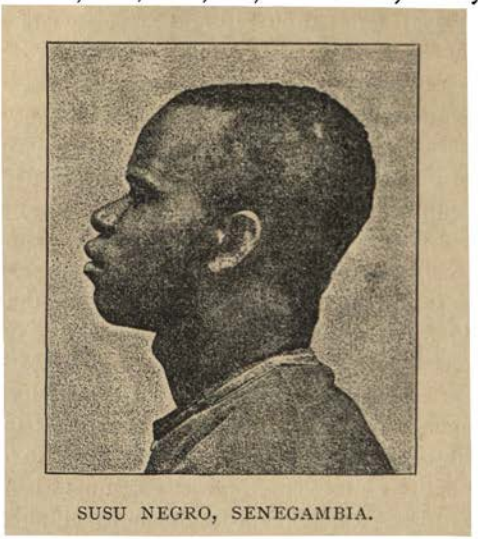
Serer, Salum river and Cape Verde district; tallest of Negroes, many 6 ft. 6 in.; herculean frames.

Toucouleur (*Tacuror*), Kaarta district and Senegal river; a historical people formerly powerful in W. Sudan; Negroid.

[1] *The Tshi-Speaking Peoples of the Gold Coast*, 1887; *The Ewe-Speaking Peoples of the Slave-Coast*, 1890; *The Yoruba-Speaking Peoples of the Slave-Coast*, 1894.

[2] Assumed to be approximately full-blood Negroes where no indication is given to the contrary.

Mandingan, the chief nation in W. Sudan, with numerous branches between the Upper Niger and the Coast: Sarakolé, Kassonké, Jallonké, Suzi, Susu, Vei, Solima &c.; mostly Negroid.



SUSU NEGRO, SENEGAMBIA.

Khabunke, *Balanta*, *Bagnum*, Upper Casamanza and Cacheo rivers.

Felup, Casamanza and Cacheo estuaries.

Landuman, *Nalu*, *Baga*, *Sapé*, Rio Nunez basin.

Bullom, *Mendi*, *Limba*, *Gallina*, *Timni*, Sierra Leone.

Pessi, *Gola*, *Kondo*, *Basso*, *Kru*, *Webo*, Liberia.

Avekvom, *Agni*, *Oshiu*, Ivory Coast.

Tshi, *Ga*, *Ewe*, *Yoruba*, Gold and Slave Coasts.

Sonrhay (*Songhay*) Middle Niger, and east to Asben.

Hausa, the chief nation between the Niger and Bornu. Negroid; speech shows Hamitic influences.

Bolo, *Yako*, *Tangala*, *Kali*, *Mishi*, *Doma*, Benue basin.

Igarra, *Ibo*, *Iju*, *Okrika*, *Nempé*, Niger delta and Oil Rivers.

Efik, *Qua*, *Andoni*, from Bonny to Rio del Rey, where Bantu domain begins on the west coast.

Borgu, *Garma*, *Mossi*, *Tombo*, *Gurunga*, *Sienuf*, within the Niger bend.

Kanuri, Bornu, Negroid; speech shows Tibu influences.

Baghirmi, Lower Shari basin.

Mosgu, between Lake Chad and Adamawa.

Yedina, *Kuri*, Islands in L. Chad.

Maba, *Birkit*, *Massalit*, *Korunga*, *Kabbaga* &c.; Waday, mostly Negroid.

Fúr, *Kunjara*, *Tegele*, Dár-Fúr, Kordofan.

Nuba, *Kargo*, *Kulfán*, *Kolaji*, *Tumali*, Kordofan.

Nubians, Nile Valley between Meroe and Egypt[1].

Shuli; *Laboré*, *Luri*, *Bari*, *Nuer*, *Dinka*, *Shilluk*, *Mundu*, *Abaka*, *Bongo*, *Mittu*, *Golo*, *Tonj* and others, Upper Nile and its western affluents between Lake Albert Nyanza and the Sobat confluence.

Kirim, *Ishing*, *Janghey*, *Bonjak*, *Komar*, Sobat basin.

Kalaka, *Mangbattu* (*Mombuttu*), *A-Bangba*, *A-Madi*, *A-Zandeh* (*Niam-Niam*), *Momfu*, *A-Kahle*, *A-Barambo*, *A-Babua*, *Embata*, *Mangballe*, *A-Banjia*, *Mabenge*, *Nsakkara*, *A-Ngaddu*, Welle basin from source to Mbomu confluence[2].

Basé (*Kunama*), *Barea*, Mareb basin, Upper Nubia.

Shangalla, *Gambil*, western slopes of Abyssinia and Gallaland.

Negroid Bantus.

Bayoñ, *Ndob*, *Basa*, *Baluñ*, *Abo*, *Barombi*, aborigines of the Cameroons[3].

[1] For the intricate relations between the Negro Nubas of Kordofan and the Negroid Nubians of the Nile valley see A. H. Keane, *Ethnology of Egyptian Sudan*, 1884, pp. 12—16. Here also the reasons are given for rejecting Fr. Müller's "Nuba-Fula" Family.

[2] In this borderland between the Sudanese and Bantu areas there is a great intermingling of tribes. From what little is known of the languages (ten vocabularies collected by Junker) Leo Reinisch infers a distant connection with the Bantu form of speech. The aboriginal Negro element seems to be best represented by the A-Kahle of the Mbomu affluent, who "probably occupy their present domain from remote times," and who "are the only nation that has not suffered dismemberment". (Junker, III. p. 280.)

[3] This distinction, made by H. H. Johnston, between the aboriginal and intruding Bantus in the Cameroons territory, "is based, not on physical appearance, which is nowhere sufficiently marked for purposes of classification, but on linguistic grounds, the indigenous tribes speaking archaic Bantu idioms

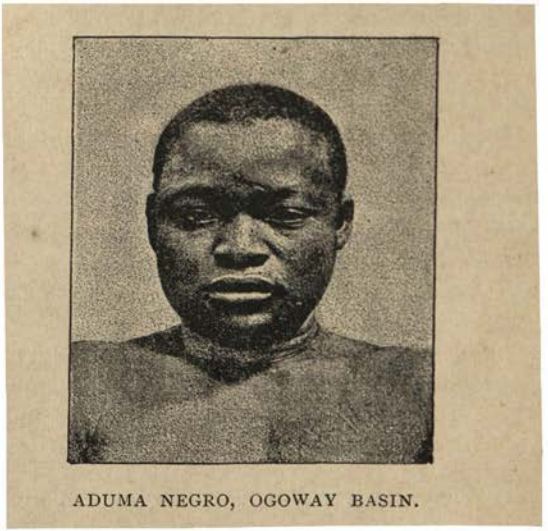
Barondo, *Bafarami*, *Bakundu*, *Bamboko*, *Bakwiri*, *Isubu*, *Duala*, *Bakoko*, *Banoko*, *Bapuko* (*Great Batanga*), *Bafindi*, *Ibea*, intruders in the Cameroons from the east and south[1].

Bubi (*Adeghaz*), Fernando Po, Bantus in speech only[2].

Fan, intruders in the Gaboon and Ogoway basins[3].

Mpongwe, Gaboon estuary.

Mbenga, Corisco Bay and islands.



ADUMA NEGRO, OGOWAY BASIN.

Galboa, *Ivinga*, *Okanda*, *Apinji*, *Ashango*, *Ishogo*, Lower and Middle Ogoway basin.

Oshebo, *Aduma*, *Osaka*, *Mbamba*, Upper Ogoway basin.

degraded by long contact with their Negro neighbours, while all the later arrivals except the Ibeas speak comparatively pure Bantu tongues connected by imperceptible transitions along the seaboard with those of the Lower Congo" (A. H. Keane, *Africa*, 1895, II., ch. 1).

[1] See previous note.

[2] "Les Boubis...se distinguent très nettement de toutes les tribus cotières par les traits, par la couleur jaunâtre de la peau, par les cheveux, qui sont longs et frisés, mais nullement laineux" (De Quatrefages, *Races Humaines*, II. p. 404).

[3] A cannibal people who reached the west coast from the interior during the 19th century, and who are described by Burton, Oscar Lenz and other

Bateke, *Apfuru*, Alima tributary of Lower Congo.

Cabinda, *Mayombe*, *Bakamba*, Kuilu basin and thence to Congo estuary.

Bangala, *Mayakka*, *Vakioko*, Kwango basin.

Bakutu, *Bakuba*, *Bakete*, *Tushilange*, *Baluba*, *Balolo*, *Eshi-Kongo*, southern affluents Middle and Lower Congo.

Ababambo, *Abanja*, Ubangi valley.

Babanda, *Babesse*, *Banalya*, Aruwimi valley.

Vuaregga, *Yambarri*, *Manyuema*, *Vuarua*, *Basamba*, Congo basin above Stanley Falls.

Kalunda, *Vuabisa*, *Vuarunga*, *Vuafiba*, *Uvinza*, *Vuahha*, Lakes Moero, Bangweolo and Tanganyika.

Abunda, *Quissama*, *Amboella*, Angola, Benguela.

Ovampo, *Ovaherero*, Damaraland.

Amaxosa, *Amatembu*, *Amampondo*, *Amafingu*, *Amazulu*, *Matabili*, *Maviti*, Cape Colony, Natal, Matabililand, Nyassaland.

Bechuana, *Basuto*, *Makalaka*, *Mashona*, *Banyai*, Bechuana, Matabili and Mashona lands.

Ganguella, *Baviko*, *Barotse*, *Mambunda*, Kubango and Upper Zambesi basins.

Batonga, *Bashukulumbwe*, Kafue and Middle Zambesi basins.

Wankonde, *Manganja*, *Wayao*, Nyassaland.

Magwangwara, *Makua*, *Maviha*, Mozambique.

Makondé, *Wazaramo*, *Wasagara*, *Wagogo*, *Vuazinza*, *Wasambara*, *Wanyamwezi*, *Waswahili*, between the east coast and Tanganyika.

Wateita, *Wataveita*, *Wachaga*, Kilimanjaro district.

Wapokomo, Tana basin, conterminous with the Hamitic (Somal, Galla) area.

observers as quite distinct from the surrounding Negroid populations, of light brown or yellowish colour, full beard, tall slim figure and very prominent frontal bone. Lenz (*Skizzen*, p. 35) describes the language as "entirely different from that of the other Negro tribes," whereas Winwood Reade (*Sketch-book*, I. p. 108) says that "it is like Mpongwe (a pure Bantu idiom) cut in half; for instance *njina* (gorilla) in Mpongwe is *nji* in Fan." This word *Fan* itself, meaning "Man," is stated to be cognate with *Bantu*, and the plural is formed in the usual Bantu way: *Ba-Fan* = Men. It occurs in several forms, *Pahuin* (adopted by the French), *Panwe*, *Fanwe*, *Mpangwe*, &c.

Wasoga, *Waganda*, *Wanyoro*, Victoria and Albert Nyanzas. *Wakonjo*, *Wambuba*, *Wawamba*, *Walenga*, Lake Albert Edward and Semliki basin; Ruwenzori[1].

The Oceanic Negro domain an area of ethnical confusion.

In the Oceanic Negro division, where intercourse has always been facilitated by the prevailing trade winds and marine currents, racial interminglings have taken place even to a greater extent than on the African mainland. The confusion of types is all the more perplexing in that this watery domain has from the remotest times been easily accessible from the southern shores of Asia, with which it still formed continuous land probably so

AUSTRALIAN.

recently as the pleistocene age, when that Continent would appear to have been already occupied both by Mongolic and Caucasic peoples. From their prehistoric migrations to Malaysia, Australia,

[1] Here the Bantu and Sudanese domains appear to overlap, and Dr Stuhlmann, who explored this region in company with Emin Pasha in 1891, speaks of the Wakonjo and some other local tribes rather as full-blood Negroes than negroid Bantus (*Petermann's Mitteilungen*, June, 1892).

and Polynesia have arisen some difficult ethnical problems, which will be discussed farther on. Here it should be noted that all these regions, now occupied by so many different races, were the primitive home of the Oceanic or eastern branch of the Negro division; consequently that the black is everywhere to be regarded as the aboriginal element, the others as later intruders.

Two main sub-divisions: Insular Negroes and Negroid Australians.

Besides the already described Negritoes, this black element comprises two broad sub-divisions, presenting such marked physical and mental differences that no systematist has ventured to group them under a common designation in the same category. These are the insular blacks, true Negroes, whose domain originally comprised the whole of Oceanica, taken in its broadest sense, and the Continental Negroid blacks, comprising all the aborigines of Australia with the extinct Tasmanians. The distinction is thus somewhat analogous to that which was seen to obtain between the Sudanese Negroes and the Negroid Bantus of the African division. The parallelism is even closer than might appear from this statement, as will presently be seen.

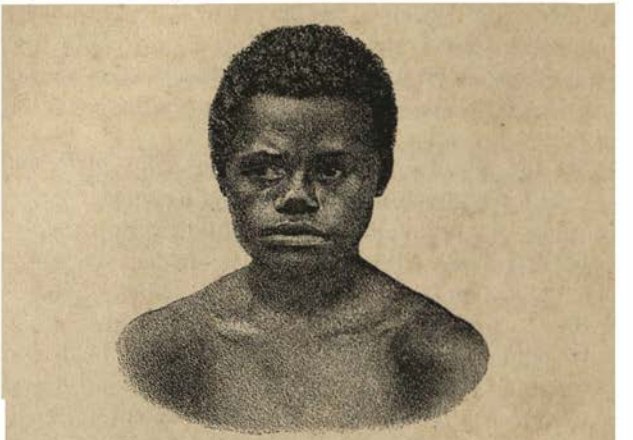
Melanesians.

No quite satisfactory general name has yet been proposed for the insular blacks, who are commonly referred to either as *Melanesians* or *Papuans*. But the use of Melanesians in this general sense gives rise to much confusion, as the term has a long-established special meaning, indicating the natives of Melanesia, that is, the insular groups (New Britain, New Ireland, Solomon, Louisiade, New Hebrides, Loyalty and New Caledonia), so named from their "Black" inhabitants[1]. Thus the Melanesians are only one section of the group, and as they moreover present some special characters, it is in every way desirable that they should retain their special name. On the other hand no reasonable objection can be made to *Papuan*, which has always been applied by the Malays to the black aborigines of Malaysia and New Guinea—that is, to the most typical members of the group—and which is moreover descriptive of their frizzly "mop-heads," one of the most

Papuans.

[1] Gr. μέλας, black; νῆσος, island.

marked physical characters of the race[1]. Where it may be necessary to distinguish, the eastern section may be called



MELANESIAN OF DUKE OF YORK I.

MELANESIAN OF NEW BRITAIN.

Melanesian Papuans, or simply Melanesians, the western Malaysian Papuans, New Guinea Papuans, or Papuans proper, as the

[1] Malay پاپوه (papúwah), *frizzled*. "The Malays now understand Papúa

case may be. For the habitat *Papuasia* seems a convenient and appropriate name, analogous to Malaysia, Melanesia, &c.

At present the Papuan domain is restricted to Melanesia and parts of Fiji, practically the whole of New Guinea with the neighbouring Torres Strait islands, and most of the smaller groups in East Malaysia as far west as Flores inclusive. But in prehistoric times it must have

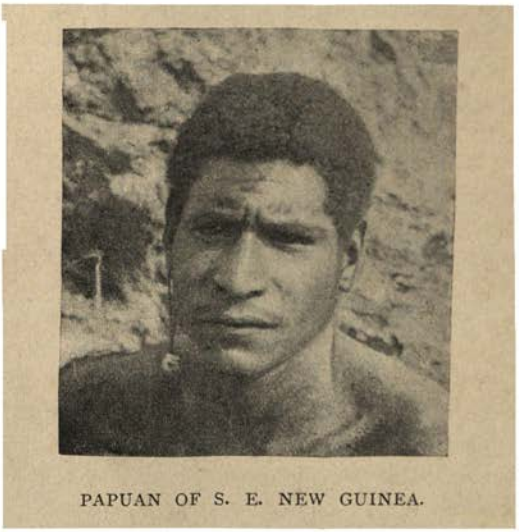
The Papuan domain past and present.

MELANESIAN OF NIFELOLE I.

also included the whole of Polynesia, as far as Easter Island in the extreme east, Hawaii and New Zealand in the extreme north and south. This is inferred from the fact that "there are probably few if any of the islands of the Pacific in which it [the Papuan element] does not form some factor in the composite character of the

to mean 'frizzled,' as the hair of the Papuans" (F. A. Swettenham, *Malay Dictionary*, p. 131). The splendid collection of about 600 photographs of Oceanic Negroes, published (1894) by A. B. Meyer and R. Parkinson at Dresden, is entitled *Album von Papúa-Typen*, although including great numbers from Melanesia as well as from New Guinea, and this general application of the term is steadily growing in favour with ethnologists. The character indicated by the word prevails everywhere from Flores to Fiji, and in the Solomon group "the whole head of hair has much the appearance of a mop placed erect on its handle" (H. B. Guppy, *Nature*, April 26, 1883).

natives[1]." It will be seen that the Papuans must have also most probably been the first inhabitants of Australia and Tasmania. But whether they had at any time spread over West Malaysia, India and Madagascar can no longer be determined, the actual relations in these regions being equally explicable by the presence either of the Oceanic Negritoes (Malaysia, India), or of the African



PAPUAN OF S. E. NEW GUINEA.

Negroes (Madagascar). De Quatrefages[2] extends their area even to the New World, because of the dark colour of the Lower Californian aborigines. But colour alone, apart from other characters, is not sufficient to determine any racial type, else many Semitic Abyssinians and Hamitic Gallas would have to be classed as Negroes. The extinct Charruas of South Brazil were also described as "black"; but no one has yet spoken of them as "Africans."

The Papuan type.

While agreeing in all essentials with the African, the Papuan type presents certain differences, such as more fully developed glabella and supraorbital ridges, narrower nose, often mesorrhine and prominent,

[1] Flower and Lydekker, p. 748.

[2] *Races Humaines*, II. p. 406.

skull somewhat higher and narrower generally, that is, more decidedly hypsistenocephalic. Yet on the other hand dolichocephaly is certainly a less constant character, so much so that on this ground some anthropologists have felt disposed to deny the existence of a distinct Papuan type at all. But the variations, which may be described as excessive[1], are obviously due to interminglings, the foreign elements being in the west the brachycephalous Malays[2], in the east the brachycephalous Sawaiori (Polynesians). Like their liquid environment, the Oceanic populations have always been in a fluctuating state, as sufficiently proved by the prodigious expansion of the Malayo-Polynesian linguistic family from Madagascar to Easter Island, and from Hawaii to New Zealand.

The linguistic problem.

This stock language has taken exclusive possession of the whole area, except Australia, Tasmania, West Papuasia and New Guinea, and even in New Guinea some of the coast tribes, such as the Motu of Port Moresby, speak pure Malayo-Polynesian dialects. It is as if in Africa Bantu were the common speech, not only of the Southern but also of the Northern (Sudanese) Negroes, and not only of the Negroes, but also of the neighbouring Hottentot, Hamitic and Semitic peoples. That the assumed analogy is not strained appears from the fact, placed beyond all doubt by comparative philology, that the Negroid Malayo-Malagasy peoples of Madagascar, the yellow Mongoloid Malays of the Eastern Archipelago, some of the black Papuans of the same region and of New Guinea, all the

Wide diffusion of Malayo-Polynesian speech

[1] Thus Miklukho-Maclay's measurements show a range of from 62·0 to 86·4 for the cephalic index of the New Guinea natives, and this observer affirms that "we have no right to describe the heads of Melanesians as well as those of Papuans as dolicho, but rather as mesocephalic" (*Nature*, Nov. 20, 1879). Even for the Solomon Islanders Guppy finds a range of from 73 to 84, with a mean of 81 for the Treasury natives, and of 74 to 77 for those of St Christoval (*Nature*, April 26, 1883).

[2] This is clearly shown by M. Maclay, who found that for centuries the Malays had maintained direct relations with the western parts of New Guinea, regularly visiting the Koving coast and other districts for trading purposes, and especially to procure slaves for the Sunda Islands (*Meine zweite Excursion nach Neue Guinea*, 1874, *passim*).

black Melanesians and all the brown Eastern Polynesians as well as the mixed Mikronesians, speak idioms belonging to various branches of the Malayo-Polynesian stock language.

The usual explanation of this remarkable phenomenon is that

NATIVE OF DUTCH NEW GUINEA.
(*True Papuan Type.*)

the diffusion of the Oceanic language is due to the migrations of the restless and aggressive Malay people, the *Orang-laut* ("Sea-

men") in a pre-eminent sense, who conquered and imposed their speech on the surrounding, and mostly inferior, insular populations. But the theory, always suspected because of its simplicity, breaks down completely before the facts firmly established by the Rev. R. H. Codrington in his classical work on *The Melanesian Languages*[1], where it is clearly shown that "Malay is undoubtedly, as compared with the languages of Madagascar and the Philippine Islands, a simplified form of the common language" (p. 26), and that, "as compared with Fijian [a typical Melanesian tongue], the languages of Tonga and Samoa [typical Polynesian or Sawaiori dialects] are late, simplified and decayed"; in a word that Melanesian is the most primitive form of the Oceanic stock language. It thus becomes self-evident that neither the Malays nor the Polynesians, both speaking later dialects, could have diffused this archaic form of speech throughout Oceanica.

not due to Malay or Polynesian migrations,

Is then a Melanesian to be substituted for a Malay migration theory, and is it to be supposed that the admittedly inferior race imposed its speech on the more advanced Malay and Polynesian populations? Or is there no solution to a problem in which race and language appear to be placed in hopeless antagonism? It has been shown that the whole of Polynesia, taken in its widest sense, was originally occupied by the black element. It also appears from Mr Sidney H. Ray's recent investigations in New Guinea[2] that Motu and the other Malayo-Polynesian languages current on the south-east coast of that island belong, not to the Polynesian branch, as had been supposed, but to the Melanesian, showing later Melanesian migrations to that region. This is one of those instances in which speech proves to be not merely a useful, but an indispensable factor in determining the constituent elements of mixed races. But Mr Ray further shows that the languages of the New Guinea

still less to Melanesian migrations.

[1] Clarendon Press, Oxford, 1885.

[2] *The Languages of British New Guinea*, in *Anthrop. Jour.* August 1894. In this valuable paper the practical identity of the New Guinea Maiva, Motu, Loyalupa, Sariba, Awaiama and Dobu with the Melanesian, and especially with the Efate of the New Hebrides group, is established on phonetic, structural and lexical grounds.

Papuans proper are fundamentally distinct from the Melanesian[1], consequently from the Malayo-Polynesian; and that even in Melanesia itself there are some dialects, such as the Kiriwina, Nada, Misima and Tagula of the Louisiades, which "only partly agree with the Melanesian," and which may be regarded as possibly "belonging to originally Papuan stocks, upon which have been grafted in course of time words and idioms from the Melanesian tongues." This "Melano-Papuan" group, as Mr Ray calls it, also comprises other somewhat aberrant members of the Melanesian branch, such as Alu (Treasury Island), Buka (Bougainville), Savo (Solomons) and Ambrym (New Hebrides), all of which "differ more or less from the typical Melanesian, and probably contain some Papuan elements" (p. 17). It follows that Melanesian is not indigenous in its present home (which also includes Mikronesia[2]), but must have been introduced and imposed upon the Papuan natives by some foreign people in remote prehistoric times. This people is none other than the Eastern Polynesians, a branch of the Caucasic division, who possibly in the Neolithic period migrated from the Asiatic mainland to Malaysia and thence eastwards to the remotest islands of the Pacific Ocean. The fact that these Polynesians now speak "late, simplified, and decayed" dialects of the common Oceanic tongue presents no difficulty, the explanation being that, while the archaic form was

The true explanation.

[1] "They present in nearly every respect the widest possible contrast to the Melanesian" (*ib.* p. 16).

[2] The languages of Mikronesia are undoubtedly Melanesian, but the natives are extremely mixed, showing all shades of colour and transitional forms between the Papuan, Malay and Polynesian types. In the western groups M. Maclay, who visited the archipelagoes in 1876, describes the people as nearly akin to the Polynesians, but with a probable Melanesian mixture, shown in the curly and even frizzly hair, dark skin and other Papuan characters. In the Esheke (Eshikie) group he found the true border-line between the frizzly and straight-haired races (*Sitzungsberichte der Berliner Gesellschaft für Anthrop.*, March 3, 1878). Thus the Marianne, Pelew, Marshall and Gilbert groups, collectively called Mikronesia, would appear to have been originally peopled by Papuans from Melanesia, and to have afterwards received numerous colonists both from Polynesia and Malaysia (the Philippines), besides occasional settlers from Japan and China. See also Dr O. Finsch, *Reise in der Südsee*, &c., Berlin, 1884, *passim*).

retained or better preserved by the rude Papuan aborigines, it became in course of time more "simplified,"—that is, improved—amongst the more progressive Malay and Polynesian peoples. Compare English with Gothic, and especially modern Danish and Swedish with Icelandic. Nobody pretends that the Danes and Swedes have derived their "simplified" Norse dialects from the archaic Norse still surviving in Iceland, because history tells us that it is the other way, that Iceland was colonised from Scandinavia, not Scandinavia from Iceland. In Oceanica common sense supplementing the few known facts must supply the place of history, and that the above is the true solution of one of the most intricate entanglements in the whole range of ethnology has been elsewhere more fully explained[1]. Since that explanation was given, and questioned because of the "Caucasic factor" introduced into the problem, this factor has been accepted by some of the foremost living or lately deceased ethnologists. De Quatrefages amongst others recognises the presence of "the three fundamental types in Oceanica[2]," while Giglioli goes so far as to speak of an "Aryan" element in Australia[3].

The Australian sub-division

In this Continent, of which Tasmania may be regarded as an "ethnical annexe," most anthropologists recognise at least two fundamental types beneath a general physical and linguistic uniformity. That the black element forms the substratum is also commonly admitted, and may be regarded as self-evident, the colour being often almost quite black, while the features and skeletal structure are distinctly Negroid. The natives of the Adelaide River (North-West), who may be taken as typical Australians, are described by a recent observer as "brown-black to almost a pure black...the head long and prognathous; eyes

not homogeneous.

[1] See A. H. Keane, *On the Relations of the Indo-Chinese and Inter-Oceanic Races and Languages*, *Jour. Anthrop. Inst.* February, 1880.

[2] "Les trois types fondamentaux se retrouvent en Océanic...Les Blancs allophyles [Caucasians] occupent essentiellement la Polynésie, les Noirs [Negroes] la Mélanésie... En Malaisie surtout, les Jaunes [Mongols] sont venus se joindre aux deux autres types" (*Races Humaines*, 1889, II. p. 335).

[3] "È noto infine che i Tasmaniani erano Negroidi e diversi in razza dagli Australiani che io considero *Arianoidi* degenerati" (*Archivio per l'Antrop.* XXIV. 1894).

deep-set; nasal bones depressed, nostrils large, dilated, and lips thick; their legs have practically no calf muscles[1]." But they differ from all other Negro or Negroid races in the character of the hair, which is neither woolly nor frizzly, but at most bushy, curly or wavy, thick, black, and like the beard (often well developed) of somewhat coarse texture[2]. The explanation, suggested amongst others by Flower and Lydekker, is that they are probably not a homogeneous group at all, as supposed by Huxley, but a cross between two already formed stocks. Thus Australia may have been "originally peopled with frizzly-haired Melanesians... but a strong infusion of some other race, probably a low form of Caucasian Melanochroi, such as that which still inhabits the interior of the southern parts of India, has spread throughout the land from north-west, and produced a modification of the physical characters, especially of the hair" (*Op. cit.* p. 748). It is added, however, that the Australians may possibly be mainly sprung from a very primitive human type, from which the frizzly-haired Negroes may be an offset, frizzly hair being probably a specialisation, not the attribute of the common ancestors of the Hominidæ[3].

Constituent elements of the Australians.

Possibly a middle term may be drawn from both of these alternatives. The "very primitive human type" is more than a mere hypothesis, as is shown by the South Australian tribe presenting Neanderthal characters, and inhabiting a district which could easily

[1] P. W. Bassett-Smith, *Anthrop. Jour.* May 1894, p. 324. With regard to the colour of the skin, "infants are a light yellow or brown, but at the age of two years they have already assumed the hue of their parents" (Carl Lumholtz, *Among Cannibals*, 1889, p. 132). The same remark is made by many other observers.

[2] So Lumholtz: "Hair and beard black as pitch, slightly curly but not woolly, seldom straight in the north-east, though straight hair is quite common in the rest of Australia, especially in the interior. I only once saw a man with his hair standing out in all directions, like that of the Papuans" (*Among Cannibals*, p. 131). This observer, however, denies the "coarse texture."

[3] These and analogous characters occur elsewhere, as in the north-east, where "their projecting jaws make them resemble the apes more than any other race, and their foreheads are as a rule very low and receding...the superciliary arches very prominent, the cheek-bones high, the temporal fossæ very deep, nasal bones flat and broad, teeth large and strong" (Lumholtz, *ib.* p. 260).

be reached by pliocene man at a time when Australia formed almost continous land with the Indo-African Continent. On the other hand Australia was equally accessible on the north and north-west sides to primitive migrations both from India and Papuasia. That such migrations took place scarcely admits of a doubt, and the Rev. John Mathew, who has made a special study of this question[1], concludes that the continent was first occupied by a homogeneous branch of the Papuan race either from New Guinea or Malaysia, and that these first arrivals, to be regarded as the true aborigines, passed into Tasmania, which at that time probably formed continuous land with Australia. Thus the now extinct Tasmanians would represent the primitive type, which in Australia became modified but not effaced by crossing with later immigrants chiefly from India. These are identified, as they have been by other ethnologists, with the Dravidians, and the writer remarks that "although the Australians are still in a state of savagery, and the Dravidians of India have been for many ages a people civilized in a great measure and possessed of a literature, the two peoples are affiliated by deeply-marked characteristics in their social system," as shown by the boomerang, which, unless locally evolved, must have been introduced from India. But the variations in the physical characters of the natives—stature (5 ft. 4 in. to over 6 ft.), features, muscular development, texture of the hair—appear too great to be accounted for by a single graft; hence Malays also are introduced from the Eastern Archipelago, which would explain both the straight hair in many districts, and a number of pure Malay words in several of the native languages[2], as well as the mental capacity, which is "anything but despicable."

Skulls from this region microcephalous, with cephalic index 71, facial angle 68, nasal index 53 (very platyrrhine).

[1] *Proc. R. Soc. N. S. Wales*, XXIII. Part 2.

[2] In other respects these languages appear all to belong to an original stock, which beyond some dubious verbal resemblances or coincidences, has not yet been affiliated to any other linguistic group. Affinities may possibly be discovered with some of the almost unknown Papuan tongues of New Guinea or East Malaysia, most of which appear to agree in their limited arithmetical systems, possessing no radicals for more than *two*, *three* or at most *four*. The morphology also seems to be somewhat analogous, agglutinating everywhere, with post-

All this agrees substantially with Flower and Lydekker's first hypothesis, especially if the primitive Dravidians be regarded, not as of Mongolic stock, against which there are many objections, but as "Caucasian Melanochroi," such as are still represented in Southern India and Ceylon by the shaggy-haired and full-bearded Todas and Veddahs. Thus would also be explained the wavy hair and thick beard forming the most marked physical trait of the Australian aborigines, while the Neanderthal characters persisting here and there would be traceable to the *Ur-Einwanderung* of the pliocene precursor from the Indo-Austral Continent.

And of the Tasmanians.

This solution of the Australian problem has the advantage of also explaining the position of the Tasmanians, who are described by Flower and Lydekker (p. 748) as perhaps aberrant Melanesians [Papuans], modified not by mixture but by long isolation. The divergence is shown especially in the width of the skull in the parietal region, the form of the nose, the projection of the mouth, size of teeth and character of the hair. Hence the conclusion of Giglioli amongst others that the Tasmanians were "of a different race from the Australians," whom "they preceded in the island-continent" (*loc. cit.*). The latter part of this statement agrees with Mr Mathew's view, while the supposed racial difference will disappear if the Tasmanians be compared, not with the average Australian, but with the more primitive groups still surviving in some districts. Thus the resemblance amounts almost to identity between the accompanying portrait of a Queensland native from a photograph by Mr J. J. Lister, and that of a Tasmanian from a sketch taken in the year 1845 by Lieut. F. G. S. de Wesselow, R.N.

fixes in Australia, with both pre- and postfixes in Papuasia. Thus: *snún*, man; *snúnsi*, men; *rosnún*, of the man; *rosnúnsi*, of the men. The difference in all cases from the *Malayo-Polynesian* family is fundamental. Thus the phonesis is much harsher, and richer in consonantal combinations and sounds, even the Australian admitting sibilants, fricatives and aspirates (*s*, *th*, *h*), as shown by A. B. Meyer and M. Uhle, although denied by Fr. Müller (*Zur Dippil-Sprache in Ost-Australien*, Dresden 1882, pp. 129–30). It should, however, be added that A. B. Meyer and G. von der Gabelentz hold Australian to be "im geraden Gegensatze zu den melanesischen [papuanischen]" in its phonetic and formative systems (*Beiträge zur Kenntniss der melanesischen...Sprachen*, Leipzig, 1882, p. 384).

In harmony with this theory is the extremely low grade of culture both of these primitive Australian groups and of the Tasmanians, lower even than that of the European palæolithic man of the Chellian age. Their rude stone implements have been compared with the specimens from Portugal claiming to be of pliocene if not of miocene origin. None are ground or polished, or detached from the core by pressure, but only by blows in the simplest possible

Tasmanian culture eolithic.

TASMANIAN. AUSTRALIAN OF QUEENSLAND.

way; nor were they mounted on handles, but only grasped in the hand, like the eoliths described at p. 74. This simple art was acquired only since the British occupation of the island, so that, assuming the accuracy of the accounts, the Tasmanians would appear "to have remained to our day living representatives of the early Stone Age, left behind in industrial development even by the ancient tribes of the Somme and the Ouse...The life of these savages proves to be of undeveloped type alike in arts and institutions, so much so that the distinction of being the lowest of normal tribes may be claimed for them[1]."

[1] E. B. Tylor, *On the Tasmanians as representatives of Palæolithic Man*, *Jour. Anthrop. Inst.* Nov. 1893, pp. 149—52.

Thus while the lately extinct Adelaide tribe carries us back nearly to the Neanderthal physical type, the lately extinct[1] Tasmanians recall the mental level of eolithic man in Britain.

[1] According to Mr James Barnard, however, one full-blood Tasmanian, Fanny Cochrane Smith, was still living at Port Cygnet in 1889 (*Nature*, Nov. 14, 1889).

CHAPTER XII.

HOMO MONGOLICUS.

Asia home of the Mongol race—easily accessible to the pliocene precursor—Transition from the generalised human type to the Mongol variety—Chief Mongol physical characters—Diffusion of the Mongol race—Early Mongolo-Caucasic interminglings—Hence aberrant Mongolic groups—Mongol Family Tree—Chief Mongol sub-divisions—Their domain—The Akkads—Early linguistic relations—The Mongolo-Tatar sub-division—Nomenclature: Mongol; Tatar; Túrki—Divergent Finno-Túrki types—The Samoyedes—The Lapps—The Baltic Finns; Karelians; Tavastians—White elements in the Mongolo-Tatar domain—Avars—Magyars—Bulgars—Osmanli affinities—Koreo-Japanese group—The Koreans—The Japanese: Physical qualities; Mental qualities—The "Hyperboreans"—The Chukchi problem—The Tibeto-Indo-Chinese sub-division—General physical uniformity—Tibeto-Chinese linguistic relations—Function of Tone in the Isolating Languages—Tibetan linguistic affinities—Indo-Oceanic linguistic relations—The Indonesians—The Malay problem—Malay physical type—Malagasy affinities—Malayo-Polynesian linguistic relations—Ethnical relations in the Philippine Islands.

Asia, home of the Mongol race,

IT is admitted by all ethnologists that Asia is the original home of the Mongolic division, a fact which harmonises well with the view that the vanished Indo-African Continent was the cradle of mankind. From that region the pliocene precursor had easy access through India itself to the Central Asian plains and plateaux. At present the peninsula appears cut off on all sides by lofty ranges from the mainland, although recent military surveys have revealed a considerable number of relatively easy passes, giving access through the Soleimán Mountains to the Iranian tableland. But in the pliocene epoch all these ranges stood at a much lower level than they now do. Both the Arakan-Yoma, now blocking the way to Indo-China, and the Siválik foothills, date only from the latter

part of the tertiary era, when the Western Himaláyas themselves were probably not more than 20,000 feet high, or nearly 10,000 less than at present. Even the Tibetan plateau, now the highest on the globe, was a marine bed in the cretaceous age, since when it has been slowly raised to its present level. In general "the extra-peninsular ranges, the great Indo-Gangetic plain, the northern margin of the peninsula, and the western coast owe their origin to another great series of earth-movements which took place during the tertiary era[1]." Consequently the way was open from India to the very heart of the continent, that is, to the shores of the then flooded Central Asian depression, at the very time when pliocene man began to spread northwards from the Indo-Austral regions.

accessible to the Pliocene precursor.

Such a precursor, migrating northwards to a new environment on the Central Asian plateau, as at that time constituted, might pass by easy transitions to a form approximately like that of the ideal Homo Mongolicus described in Chap. X. Neither colour of the skin, texture of the hair, nor stature could present any difficulty, for in all these respects the Mongol type stands actually nearer than does the Negro to that of the precursor as conceived by de Quatrefages. Hence the unsatisfactory nature of all attempts made to derive the yellow and white varieties from the black, which is generally but wrongly assumed to be in all particulars the best representative of primitive man. It is mainly in the form of the skull, its extreme prognathism and dolichocephaly, as well as in the disproportionate length of the arms and slight muscular development of the calves, that the Negro stands nearest to the anthropoids. Perhaps in most other respects the Mongol takes this position, although Topinard has noticed that in the texture of the hair the white comes nearest to the apes, the black differing most, while the yellow is intermediate. Such results should be expected on the theory here assumed of independent ascent from the prototype, whereas they would be inexplicable on the opposite assumption of successive transitions from one human variety to another.

Transition from the generalised human type to the Mongol variety.

[1] R. D. Oldham, *The Evolution of Indian Geography*, in *Geograph. Jour.* March, 1894, p. 180.

Taken as a whole, the typical Mongol differs from the other divisions mainly in the general yellowish colour of the skin, the broad flat features, with very prominent anteriorly projecting cheek bones, small mesorrhine nose, mesognathous jaws, brachycephalous head, slightly developed superciliary ridges and glabella, somewhat sunken eyes with narrow almond-shaped aperture between the lids, a vertical fold of skin over the inner canthus and outer angle slightly elevated. This oblique eye with its "third lid" is a highly characteristic trait, constant in the more typical groups, and exclusively found in the Mongol division. The black, lank and rather coarse hair, almost if not quite circular in transverse section, is also a constant but not an exclusive character, being equally common to the American division, and forming the most marked physical link between Homo Mongolicus and Homo Americanus. It seems to justify the assumption of an original generalised Mongolo-American type, from which the American branched off at an early date prior to later differentiations, as represented in the Family Tree of the Hominidæ (p. 224).

Chief Mongol physical characters.

After the separation the parent stem continued to spread over a great part of the continent, reaching its extreme eastern limits probably in the palæolithic age, passing later southwards into Malaysia, and penetrating in neolithic times into Europe, but apparently not into Africa. This early expansion of the Mongol race, of which there is monumental evidence in Mesopotamia, and abundant ethnical proof in Indo-China and the Amur basin, brought about fresh groupings and interminglings, not only with kindred tribes, but also with Caucasic peoples, who had already in remote times spread from their primeval homes in North Africa and Europe eastwards to Japan, south-eastwards to India and Indo-China, and thence to Malaysia, Australasia and Polynesia. Thus arose, not only on the confines but in the very heart of the Mongol domain, those Mongoloid and Caucasoid aberrant groups, such as the Malaysian Indonesians, the Mesopotamian Akkads, the Dravidians of the Indian peninsula, the Ugrian Finns, and the Túrki peoples, wrongly called Tatars, all of whom are found fully constituted long

Diffusion of the Mongol race.

Early Mongolo-Caucasic interminglings.

MANCHU OF KULJA.
(*Profile.*)

MANCHU OF KULJA.
(*Full face.*)

KALMUK WOMAN.
(*West Mongol Type.*)

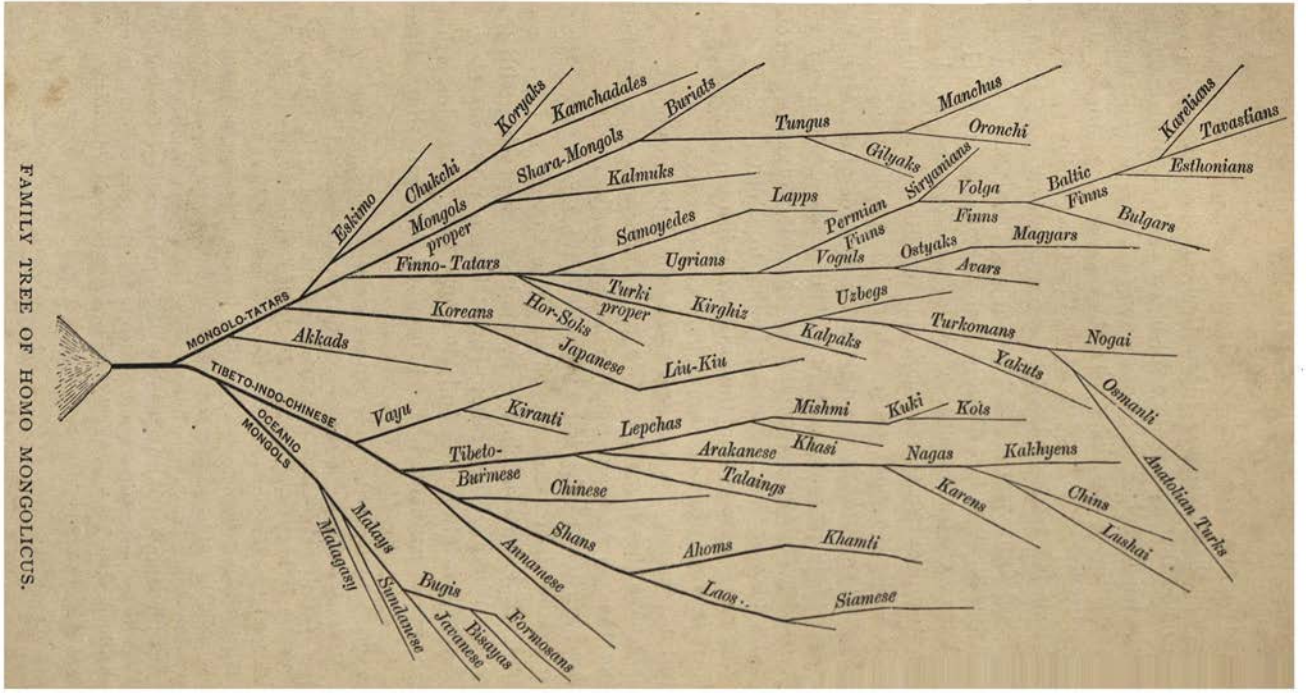
before the dawn of history, but whose ethnical affinities have remained an unsolved problem. But, speaking broadly, it may be confidently said that the explanation of these ethnical puzzles will be found in the frank recognition of Mongolic and Caucasic elements interpenetrating each other at various points of their respective territories from the earliest times[1]. In the presence of distinctly fair types and regular "European" features in Manchuria, Korea, Yezo, Turkestan, parts of Siberia, and Malaysia, the assumption must be abandoned that these regions have always been the exclusive appanage of the yellow race. In the chapter devoted to the Caucasic division, this important subject will have to be dealt with more fully. Meanwhile it will suffice here to point out that in the accompanying Family Tree of the Mongolic division all those aberrant groups find a place, which can be shown to belong fundamentally to the Mongol stock. Here language becomes an important factor, to which appeal may be made in doubtful cases, while historic evidence is available in determining the constituents of Magyars, Bulgars, Uzbegs and some other later groupings.

Mongol Family Tree.

Here, as in the Negro Tree, two great limbs are seen to branch off from the parent stem nearly simultaneously—the *Mongolo-Tatar* to the left and the *Tibeto-Indo-Chinese* to the right. From each of these springs an extra-continental branch, the Mongolo-Tatar passing with the *Eskimo* to America, the Tibeto-Indo-Chinese with the *Oceanic Mongols* to the neighbouring Indo-Pacific waters. Thenceforth a relatively close connection is maintained between the various

Chief Mongol sub-groups.

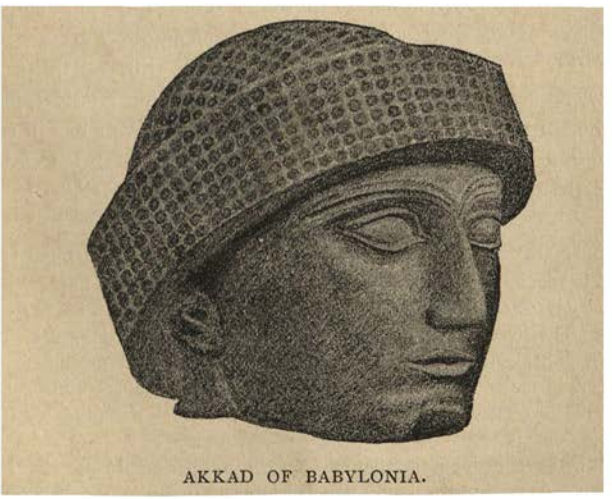
[1] On this point Dr Hamy aptly remarks: "Nous passons d'une race à l'autre par des transitions insensibles, et nous avons pu ainsi nous rendre compte de l'extrême difficulté que présente habituellement la délimitation scientifique des Jaunes et des Blancs. Les vallées de la Sibérie occidentale sont parcourues dans les hautes latitudes par des peuples, comme les Samoïèdes, Kanirs et autres, chez lesquels les variations individuelles sont vraiment fort étendues et conduisent, à peu près sans hiatus, du Mongol au Lapon. Ailleurs, dans les mêmes zones, les types intermédiaires établissent d'autres passages presque insensibles du Lapon au Finnois et du Finnois au Slave. On peut ainsi aligner des séries d'observations continues entre les plus exagérés des Jaunes, et certains Blancs tout à fait avérés." (*Les Races Jaunes* in *L'Anthropologie*, May–June, 1895, p. 249.)



FAMILY TREE OF HOMO MONGOLICUS.

Tibeto-Indo-Chinese sub-branches, whereas the Mongolo-Tatar ramifications are not only far more numerous, but also develop more independent secondary branches, such as the Akkad, the Koreo-Japanese, the Finno-Tatar and the Mongol proper, some confined to the Asiatic mainland, others spreading eastwards to the Japanese archipelago, or westwards far into Europe. Europe, however, may be regarded as to some extent an ethnological, as it is altogether a geographical, dependency of Asia. Thus the whole of the northern section of the eastern hemisphere is seen to be largely occupied by Mongol or Mongoloid peoples, the regions from which they are either partly or altogether excluded being India, Irania, Arabia, North Africa and West Europe. Such throughout the historic period has been the domain of the Mongol division, here and there modified from time to time by the vicissitudes of the secular struggle for ascendency maintained with the conterminous Caucasic populations.

For the Mongol division the historic period dates from the



AKKAD OF BABYLONIA.

earliest records of the Mesopotamian Akkads, founders of the oldest known civilization in Babylonia. Here some of the figures brought to light by M. de Sarzec at Tell-Loh, site of the ancient city of Lagash (4000—2500 B.C.),

The Akkads.

show distinctly Mongolic traits in the prominent cheek bones, oblique eyes and generally flat features, standing out in marked contrast to the almost pure Semitic type of the later Assyrian epoch[1]. We have also seen (Ch. IX.) that the Akkad language shows some striking resemblances to Chinese, while most Akkad students are rather inclined to affiliate it either to the Finnic or to the Túrki branch of the Mongolo-Tatar linguistic family. The reconciliation of these apparently contradictory views may be found in the now established fact (p. 207) that Chinese was itself formerly polysyllabic, and may consequently have sprung from a common Tibeto-Mongol form of speech, of which Akkad is the earliest and nearest representative. If continued in this direction, Akkad studies may lead to a satisfactory solution of the Tibeto-Mongol problem, and to the recovery of the primordial unity of the Mongolic division, which appears in our Mongol Family Tree to be split from prehistoric times into two great subdivisions.

The Mongolo-Tatar subdivision.

The expression "Mongolo-Tatar" applied to one of these subdivisions, is perhaps too firmly established to be now set aside. But "Mongolo-Túrkic" would certainly be preferable, though still not quite satisfactory, as seeming to exclude the Eskimo, the Koreo-Japanese and the Finnic groups. The expression *Ural-Altaic* has in recent years come into favour as a convenient alternative and is certainly better than the misused and discredited "Turanian[2]." It is of

[1] On Plate XXV. of de Sarzec's *Découvertes en Chaldée* "a small head is figured in which an obliqueness of the eyes is clearly noticeable" (T. G. Pinches, *Types of the Early Inhabitants of Mesopotamia*, in *Jour. Anthrop. Inst.* 1891, p. 99). The head of No. 1, Plate XII. figured and restored by Mr Pinches (pp. 87, 88), also shows a general Mongolic expression in the flat face and well-marked malar bones flattened in front. No importance can be attached to Mr Pinches' restoration of the mutilated nose, which was probably smaller than here shown.

[2] Whether containing the root of *Túrk*, or, as seems more probable, traceable to an Aryan word meaning "swift" (cf. Skt. *tvará*=haste, speed), *Túra* (later *Túrán*) was applied in the early Persian records to the region north of Ariana (East Irania) now known as Túrkistán, "Land of the Túrk." Thus was indicated the sharp contrast, the everlasting antagonism, between the settled *Aryas* (root *ar*, to ear, to plough) and the nomad *Túráni*, swift-moving predatory hordes then as now. When comparative philology began to extend

course geographical, and like the analogous "Indo-European" is defective, excluding large areas occupied by Mongoloid peoples of Mongolo-Tatar speech. Here it will be used like Schott's *Ugro-Altaic* in the widest sense, so as to embrace the whole region from Lapland to Japan inclusive, a region occupied by peoples of more or less homogeneous physical type, and now shown to speak idioms ultimately traceable to a common stock language.

Nomenclature.

The great objection to "Mongolo-Tatar" lies in the fact that it is tautological, both terms of the compound form being historically referable to Mongol peoples proper, so that *Tatar* is wrongly taken as synonymous with *Túrki*. No objection can be made to the first component, whether derived from *mong*, "brave," or from the *Mongol* tribe of which Jenghiz-Khan was chief, and which in the 12th century was seated near the Kara-Kara mountains north of the Gobi Desert. But *Tatar* (plural of *Tata*) was never the name of any section of the Túrki branch, to which it is now collectively applied. It appears to be a Tungus or Manchu word, meaning either "archer" or "nomad," and first occurring in Chinese records of the 9th century in reference to certain Mongol tribes which were later driven by the Khitans southwards to the In-Shan mountains about the great bend of the Hoang-ho river. Here the predatory Mongols and Tatars, all closely related members of the Mongol group proper, were welded into one nation by Jenghiz-Khan, a Mongol on his father's side, and a Tata on his mother's. That Tatar became dominant in the west was largely due to the fact that the Tatas generally formed the van of the Mongol expeditions westwards. At an early date Tatar took the form *Tartar* by association with the *Tartarus* of classic mythology, as in the

its sphere from the Indo-European to the Central Asiatic linguistic domain, *Túrán* naturally supplied the comprehensive term "Turanian" needed to distinguish the Mongolo-Tatar from the Aryan linguistic family. But while Aryan has held its ground, Turanian has fallen into abeyance, thanks to its misuse by popular ethnographists, who made it a convenient receptacle for almost everything non-Aryan in the Eastern, and even occasionally in the Western, Hemisphere. At present Turanian is the *shibboleth* of unscientific and inaccurate writers on ethnological subjects.

letter (1241) of Louis IX. to Queen Blanche[1]. Thus it happened that Tatar or Tartar, originally the name of a Mongolian tribe, was gradually transferred to the western group whose proper name always has been and still is *Túrki*, though in many places ruled by Khans of real or pretended Mongol descent. The powerful Kipchak empire, founded by Batu-Khan, grandson of Jenghiz, was mainly inhabited by Kumans, Pechenegs, and other Túrki peoples, and when the empire was broken into fragments, each section still continued to be ruled by Tatar Khans and to be called a Tatar Khanate. Thus originated the expressions "Siberian Tatars," Kazan, Astrakhan, Krim (Crimean) and other Tatars, that is, Túrki peoples ruled by Tatar princes of Jenghiz-Khan's dynasty. But the peoples themselves have always disclaimed the name of Tatar, calling themselves and their language Túrki.

This word is of far more venerable origin than the Mongol term which has partly usurped its place. It is traceable in its mutilated Chinese form *Tu-kiu* back to the 2nd century B.C. when a people of that name dwelt in the Altai region. Here they gradually rose to great power, and in the first century of the new era their name had already reached Europe, the *Turcæ* being mentioned both by Pomponius Mela (I. 22) and by Pliny (VI. 7)[2]. The Hiung-nu and the On-Uighurs, founders of vast but unstable empires, were all of Túrki stock, as were also the bulk of Attila's hordes, that is, "the Huns whom we commonly call Turks" (G. Theophanes, 8th century). In 569 Sinjibu, Kha-Khan ("Great Khan") of the Altai Turks, received an embassy from Justin II. of Constantinople, and ever since that time the Turks,

[1] "Erigat nos, Mater, cæleste solatium, quia si perveniant ipsi, vel nos ipsos quos vocamus *Tartaros* ad suas tartareas sedes retrudemus, vel ipsi nos omnes ad cælum subvehent." But it would almost seem from this text and from other circumstances as if the form *Tartar* had already been established, and the word occurs in fact in earlier documents (1237 and 1240). A vast amount of information on the early history and relations of the Mongolo-Túrki peoples is embedded in Sir H. H. Howorth's monumental but ill-digested *History of the Mongols*, 1876-80.

[2] W. Thomsen reads the name *Türk* in the scarcely decipherable rock inscriptions of the Yenisei, which he refers to a Turki dynasty ruling in that region in the 8th century (Paper submitted to the R. Academy of Denmark, Jan. 1894).

under one name or another, have maintained almost uninterrupted relations, hostile or friendly, with the nations of the West, overthrowing the Byzantine Empire (1453), penetrating up the Danube to the gates of Vienna (1683) and still holding their ground in the Balkan Peninsula, Anatolia and parts of Irania.

Divergent Finno-Túrki types.

The Túrki type, originally Mongolic, had at an early period been profoundly modified in many places, and especially in the north by contact with peoples of Caucasic race, whence the frequent mention of "red hair," "green eyes," and "white complexion" in the early Chinese records. By some ethnologists these modifications have been attributed to interminglings with Ugrian (Siberian) Finns, the Finnish race itself being regarded as originally not Mongolic but Caucasic. De Quatrefages habitually calls them "white Allophylians." Many of the European Finns[1], and especially the Baltic group, have undoubtedly been largely assimilated to the surrounding populations, although even these retain certain physical and mental characters, such as peaky eyes, somewhat flat face, round head, dull sullen temperament, which, combined with their pure Ural-Altaic speech, betray their primordial Mongol affinities. These affinities become more marked in the direction from west to east, until the Samoyedes, Soyotes and other Finns of Siberia, true home of the race, show all the characters of the Mongolic type often in an exaggerated form.

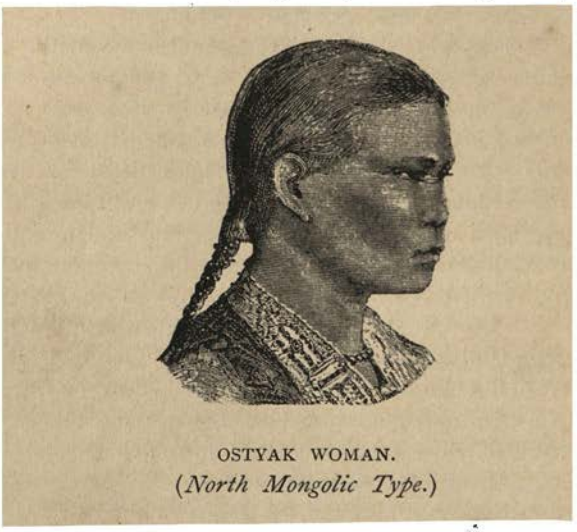
Thus the Samoyedes[2] of the Ob basin, studied by Castrèn,

[1] The European Finns call themselves *Suomilaiset*, usually interpreted "Fen People," from *suo*, fen, swamp; but this cannot be because the *m* of *suomi* is radical; hence the assumption that "Finn" is a Teutonic translation of Suomi, in the sense of "Fen People," also falls through. Moreover to derive this word from Old Norse *fen* is philologically impossible. Here the *e* arises by *umlaut* from an original *a*, as in the Gothic *fani*, whereas *Finn* (*Fenni*, *Finni*, Tacitus, *Germania* 46; Pliny 4. 13) goes back to a time long prior to the appearance of *umlaut* in the Teutonic languages. See W. Thomsen, *Ueber den Einfluss der germanischen Sprachen auf die finnisch-lappischen*, Halle, 1870, note p. 14.

[2] Properly *Hasovó* or *Nenézi*, both terms meaning "men," and current, the former chiefly in the Ob basin, the latter west of the Pechora river. The word *Samoyede*, for which the absurd popular etymology "Self-eaters," in the sense of *Cannibals*, has been found in the Russian language, appears to be also

The Samoyedes.

Finsch and especially Stephen Sommier, have the true Mongolic eye, fold and all, the characteristic short nose, prominent malar bones, flat features, low stature scarcely exceeding 5 ft. 1 or 2 in., lank dark hair ranging from a deep chestnut to black, and distinctly round head (Sommier's mean cephalic index 84·44)[1]. Although their southern neighbours, the Ugrian Voguls and Ostyaks, present some marked differences, especially in their lighter complexion,



OSTYAK WOMAN.
(*North Mongolic Type.*)

chestnut and even blonde hair, and long head (index 79·28), the Mongol type is conspicuous enough in their flat features, small nose, slightly oblique eyes, and short stature (little over one per cent. taller than the Samoyede). The hair is described as "red"

a national designation, in which *Samo* is to be equated with the Finnish *Suomi* and the Lapp *Samé*, as in *Suomilaiset*, *Samélats* (A. H. Keane, *The Lapps*, p. 3). According to Mr Fr. G. Jackson the present pronunciation is *Samoyad*, or even *Samyad*, at least in the districts visited by him during his expedition to Waigatz Island: "Mr Jackson found that the Yuraks of the Trans-Pechora country invariably pronounced the name as if it were *Samo-yad*, or even *Sam-yad*" (*The Great Frozen Land*, 1895, note by Mr Arthur Montefiore, p. 54). So also Mr Trevor-Battye, *Ice-bound on Kolguev*, 1895, p. xxii.

[1] *Sirieni, Ostiacchi e Samoiedi dell' Ob*, Florence 1887, p. 150.

by Topinard and other ethnologists; but this is a mistake arising out of a faulty translation of the original account given by Pallas, which was itself inaccurate, but which has now been rectified by Sommier (p. 63). It is noteworthy that the hair of the Lapps, most aberrant of all the western Mongoloid peoples, is at present generally brown or light chestnut, whereas in Linné's time it was normally black[1]. This rapid modification of a marked physical character, attributed by the writer[2] doubtfully to crossing with the fair-haired Scandinavians, is shown by Sommier[3] to be more probably due to alliances with the blond Quaens, that is, Finnish immigrants into Lapland. But whatever be the cause, the fact is important, as illustrating the analogous changes by which in the course of ages the Baltic Finns themselves have been largely assimilated in appearance to the average European. In this group Retzius[4] distinguishes two well-marked types, the eastern *Karelians*, tall, slim figures with regular features, straight grey eyes, brown complexion, and chestnut hair hanging in ringlets down to the shoulders, and the western *Tavastians*, the "white-eyed Chudes" of the Russians, broad thick-set figures, small and slightly oblique blue eyes, light flaxen or towy hair, and white complexion. It would almost seem as if the Tavastians were the issue of a German graft on a Mongol stock, while the Karelians represented a Slavo-Mongol mixture in which the original Mongol element was largely eliminated. In this respect the Karelians resemble the more easterly Permian Finns, and especially the Siryanian group, who dwell on both sides of the northern Urals, and who are distinguished from the neighbouring Samoyedes by their white colour, blonde or light chestnut hair, large brown or grey eyes, and straight nose. Some of these Russified Finns have

The Lapps.

The Baltic Finns.

[1] "*Capillis nigris, brevibus, rectis*," *Systema Naturæ*.

[2] *The Lapps*, 1885, p. 7.

[3] *Sui Lapponi e sui Finlandesi Settentrionali, Archivio per l'Antropologia*, XVI. 1886, p. 162. The general Mongolic affinities of the Lapps, affirmed by the writer (*op. cit. passim*), but denied by many anthropologists, is accepted by this observer: "Egli ammette che i Lapponi sono di origine Mongolica, ed in questo, dando al termine *Mongolico* un senso molto largo, andiamo d' accordo" (*op. cit.* p. 52).

[4] *Finska Kranier, passim.*

even developed a full beard, while others still betray their Mongol descent in their broad heavy features, small nose, and large malar bones, "recalling the Tavastian type of Finns[1]."

White elements in the Mongolo-Tatar domain.

It is generally supposed that the region about the headwaters of the Yenisei was the original home of the Finnish race, and here still survive a few isolated Samoyede tribes, such as the Koibals, Karagasses, Kamassintzi and Soyotes. Although some of these have intermingled with the neighbouring Túrki tribes and now speak Túrki dialects, the Turks of Central Asia could not have acquired their Caucasic features from this source, the affinities of the Upper Yenisei Finns being, not with the Slavonised or Germanised western groups, but with the North Siberian Samoyedes of pronounced Mongol type. The same Caucasic strain has moreover been traced through Manchuria and Korea to Japan, regions where no Finns have ever been heard of, but where a distinctly Caucasic element still survives in the Ainu aborigines of Yezo. The early Chinese records have preserved the memory of other "Allophylian Whites," such as the Wusuns, an extinct historical nation of Central Mongolia described in the annals of the Han dynasty as a tall fair race, with red hair and green eyes, who were gradually driven by the Mongols westwards to the Tarim basin (Kashgaria). Thus the Mongolo-Tatar populations are everywhere found from remote prehistoric times interpenetrated by primitive Caucasic peoples, and it is to the interminglings of these two elements that must be attributed the Caucasic characters noticed in all ages amongst the Finno-Tatars and their more remote allies of Manchuria, Korea and the Liu-Kiu (Lú-Chú) Archipelago.

Avars.

During their later migrations southwards and westwards the Finno-Tatar peoples (Avars, Magyars, Bulgars, Osmanli and other Turks), underwent still more profound transformations. Nearly all became assimilated by miscegenation to the Caucasic type, some (Avars) being completely absorbed, others (Bulgars) retaining but slight traces of their Mongol descent and nothing of their Finno-Tatar speech, others again (Magyars, Osmanli) losing their physical characters, but

[1] Sommier, *Sirieni*, &c., p. 66.

preserving their highly agglutinating Ural-Altaic languages[1]. The Avars, whose very name has perished, unless they are still represented by a small group of wild hillmen bearing that designation in the Caucasus, were formerly dominant from the Don to the Middle Danube, where they clashed swords with the legions of Charlemagne. In Pannonia (Hungary) they were replaced by the kindred Magyars of Finno-Túrki stock, who in the 9th century crossed the Carpathians and pitched their tents on the banks of the Theiss and Danube, where they are still the dominant people.

Magyars.

The Magyars are ethnologically an extremely interesting nation, who for about a thousand years have preserved their Finno-Túrki speech intact amid a congeries of Aryan-speaking populations, while in their new environment their Mongolic physical type has gradually conformed to the normal European standard, perhaps partly by convergence, but mainly by continuous crossings with their German, Slav and Rumanian neighbours. Mentally also the evolution is complete, and the frank, chivalrous, intelligent and highly cultured Magyars of the present day differ as much from their rude nomad forefathers roaming the northern steppe as does the present imperial race of Englishmen from their Romano-British forerunners. But how are such a people to be classified? No doubt some of the peasantry, and especially the so-called *Szeklers*[2] of Transylvania, are still distinguished by somewhat coarse Mongoloid features, whether inherited or acquired by fusion with the Avars. But were it not for their Ural-Altaic speech, the most experienced anthropologist would fail to detect a drop of Mongol blood in the regular, often handsome features, white skin, shapely pliant figure and quick flashing glance of the average Magyar of the present generation. It thus becomes evident that, when the details are reached, all classifications resolve themselves into more or less convenient groupings of the transitional forms by which the primary divisions are everywhere connected on their ethnical borderlands.

So with the Bulgars, a horde of Volga[3] Finns, who in the

[1] For an explanation of these phenomena see Chap. IX.

[2] Properly *Szekely*, "Borderers."

[3] The Byzantine chronicler Nicephoras Gregoras (14th century) states expressly that the Bulgars took their name from the Bulga (Volga), which

KARA-KIRGHIZ OF SEMIRECHINSK.
(*Profile.*)

KARA-KIRGHIZ OF SEMIRECHINSK.
(*Full face.*)

KARA-KIRGHIZ WOMAN OF SEMIRECHINSK.

KIRGHIZ OF TASHKEND DISTRICT.
(*Turki Type.*)

7th century (678) moved southward and settled in Moesia on the right bank of the Lower Danube. Here their fate was somewhat different from that of their remote Magyar kinsmen. Failing to preserve their ethnical independence, they had already in the 10th century exchanged their Finnish speech for a Slav tongue, and were thenceforth classed with the Slavonic branch of the Caucasic peoples. Yet the Mongol physical characters were never quite eliminated, and are still perceptible in the somewhat broad flattish face, long black hair, small slant eyes, heavy figures, and rather sluggish temperament of the modern Bulgarians. In their original home, "Great Bulgaria," the Mordvins, Cheremisses, Chuvashes, Votyaks and other kindred Volga Finns, are also being slowly Slavonised, and on linguistic maps already appear like so many ethnical islets lost amid the vast sea of surging Russian nationality. A similar fate is overtaking the Bashkirs, Tepyaks and other Finno-Tatar groups of the Southern Urals, as well as the Baltic Finns south of the Gulf of Finland, where those of Kurland and Livonia have already disappeared; none of Finnish speech now survive in this region except the historical Esthonians, of whom King Alfred has left an interesting account in his translation of *Orosius*.

Bulgars.

Like the Finns, the European Turks (Osmanli) have lost most of their Mongol physical characters[1]. But while the Finns have generally become xanthochroi (blondes), the Turks have approximated more to

Osmanli affinities.

traverses their country, "Great Bulgaria," so called in contradistinction to "Little Bulgaria" (Moesia) south of the Danube.

[1] These characters are thus described by Dr Hamy:—"Aplatissement pariéto-occipital, commun à tous les Turcs. Ce trait signalétique très habituel, très manifeste, permet déjà d'établir entre le Mongol et le Turc une différence immédiatement appréciable. Il en est un second plus frappant encore et qui, combiné avec le premier, donne à la boîte cranienne du Turc, qu'il soit Yakoute ou Turcoman, un *aspect cuboïde*. C'est la tendance de la tête à se développer en hauteur, juste en sens inverse, par conséquent, de l'aplatissement vertical du Mongol. La tête du Turc est donc à la fois plus haute et plus courte; elle est aussi un peu moins large à proportion et l'indice céphalique est seulement sous-brachycéphale. La face, s'harmonisant, comme il convient, avec le crâne ainsi quelque peu rétréci, est moins épanouie; par contre le squelette nasal s'accentue plus encore chez le Turc que chez le

the mèlanochroic (dark) subdivision of the Caucasic type, a difference readily explained by their exogamous alliances with the Circassians, Abkhasians and other Mohammadan peoples of the Caucasus. Their Mongol descent is now chiefly shown by their Túrki language, which despite the Arabic and Persian forms of the literary standard, still preserves the peculiar agglutinating structure of Ural-Altaic speech. When they are followed along the line of their westerly migrations to their Central Asiatic homes, the Turks, like the Finns, are also seen to gradually approximate to the Mongolic physical type. This may be seen by a detailed study of the Anatolian Turks, the Kizil-Bashes of the same region, the Afars, Qajars and other Túrki nomads of Persia, the Turko-

UZBEG OF ZERAFSHAN DISTRICT.
(*Turko-Iranian Mixed Type.*)

SOLON OF KULJA.
(*Manchu Type.*)

mans of Western Turkistan, the Uzbegs, Kara-Kalpaks and others of the Oxus basin, the Kirghiz hordes of the West Siberian steppe, the East Siberian Yakuts, the Solons of the Amur basin

Mongol, et vous avez pu voir sur des Ansariehs, par exemple, des cas de macrorhinie véritablement surprenants" (*L'Anthropologie*, 1895, May-June, p. 248).

and the Hor-Soks of the Tibetan plateau. The Túrki branch proper is thus found to cut obliquely across the heart of the continent from the Lena and Amur basins to the Bosphorus, interrupted here and there by Mongol, Iranian, and other elements, but everywhere showing remarkable linguistic uniformity amid all the transitions between the Mongolic and Caucasic physical types.

Koreo-Japanese group.

From the Mongolo-Tatar bough of the Family Tree a slender branch comprising the Koreo-Japanese group is seen to ramify independently between the two main subdivisions of the parent stem. The relative position of this group to the other members of the family, long a subject of discussion, may now be regarded as settled. That the separation took place at a very remote period is evident from the difficulty observers have had in recognising the connection, which even now has been established perhaps as much by the aid of language as of physical characters. This may be explained by the fact that both the Koreans and Japanese are mixed peoples, yellow and white elements prevailing in the former, yellow, white and perhaps brown in the latter, whereas their languages are unmixed and fundamentally related with the Ural-Altaic family. Korean was first shown by Mr W. G. Ashton to be remotely connected in its verbal and structural character and phonetics with Japanese. "It seems probable that the distance which separates Japanese from Korean...is not greater than that which lies between English and Sanskrit....Everything considered, we may regard them as equally closely allied with the most remotely connected members of the Aryan family[1]." Since then a distant relation has also been established between Japanese and the other branches of the Ural-Altaic stock language. But here the affinity is exceedingly faint, less even than that now established between the Hamitic and Semitic groups. It would appear however to be of a fundamental nature, due, not to later contact, but to common descent. On this obscure philological problem, which so nearly concerns Ural-Altaic ethnical affinities, much light has been thrown by Dr Heinrich Winkler in his scholarly treatise *Japaner und Altaier* (Berlin, 1894). Here it is shown that all the essential

[1] *A Comparative Study of the Japanese and Korean Languages*, in *Jour. R. As. Soc.* 1879, p. 360 *et seq.*

features of Japanese, and consequently also of Korean, find their counterpart in the Finno-Ugrian group. Numerous identities have also been traced between the radical elements and primitive vocabularies of both families, so that little doubt now remains of their fundamental unity. In this respect Japanese and Korean would appear to stand in much the same relation to Finno-Tatar that the Hamitic does to the Semitic linguistic family. In both cases no doubt the disparity is enormous, and such wide divergences from original stock languages must have taken a vast period of time to accomplish. But such a consideration can have weight only with those who, despite accumulating evidence of great antiquity, still persist in limiting the existence of man to a few thousand years.

The Koreans.

Their common descent is also clearly perceptible in some of the physical features of the Koreo-Japanese groups. The Koreans, who take an intermediate position between the continental and insular Mongoloid peoples, are somewhat taller and more robust, with much lighter complexion and far more regular features than the average Mongol. As amongst the neighbouring Manchus, greenish, grey and even blue eyes are not uncommon, and the fusion of yellow and white elements is perhaps more marked than elsewhere in north-east Asia. Ernst Oppert[1] everywhere met people, and especially children, with such regular features, florid complexion, light hair and blue eyes, that they could scarcely be distinguished from Europeans. The national records speak of two primitive races, the Sien-pi and San-San, apparently representing yellow and white types, who were gradually merged in the present *Kao-ri* (*Kao-li*, *Koreans*).

The Japanese.

Their Japanese neighbours are the outcome of more complex interminglings[2]. According to the national traditions they arrived from the south and south-west, and gradually spread over the archipelago, driving the Caucasic Ainu aborigines northwards to Yezo, and no doubt

[1] *Reisen nach Korea*, Leipzig, 1881, *passim*.

[2] "Among the Japanese there are three distinct types noticeable in the living subject (*Rosny*), and a fourth which we may gather from an examination of skulls" (Topinard, *Anthropology*, p. 445).

here and there mixing with them, though nowhere to any considerable extent. Some appear to have arrived from the southern

JAPANESE WOMAN.

Malay lands (Formosa, the Philippines), while others may have come from Polynesia. But there is nowhere any evidence of the

JAPANESE JINRICKSHA RUNNER.

black or Negrito element that has been spoken of, and all the evidence points to Korea as the original home of the great

majority, and especially of the dominant classes. Amid much diversity, all these elements have merged in a marked Japanese type, which can generally be recognised, and which is characterised by a flat forehead, great distance between the eyebrows, small but well-formed nose, with slightly raised nostrils, no glabella, nor any depression at the root of the nose, small black eyes, rather less oblique than the Chinese, lank black hair, scant or no beard, disproportionately short legs and low stature, shown by the measurements now taken of the conscripts for the army to average about 5 ft. 4 or 5 inches. The complexion is sallow, or dirty olive-yellow, but "it is curious how the (face) complexion of these people differs from the body complexion. In the course of two visits to Japan, in which I travelled much in various parts of the country, I saw many hundreds of naked Japanese, the bathing of both sexes in company being at that time the rule, and I was struck particularly with the fact that, in spite of their sallow or yellowish complexions, their bodies were *whiter* than those of Englishmen or even English women. The Chinaman, however, *strips yellowish*[1]." "The Koreans are notably taller than the Japanese; and it is on the islands of Tsushima and Iki, in which Korean blood predominates, that the height of the men averages one inch more than on the main island, Hondo[2]."

Physical qualities.

It was seen (p. 45) that there is no necessary correlation between physical qualities and mental endowment. This ethnological datum is perhaps better illustrated in the Japanese than in any other race. Compared with the average Chinese and especially with the Manchus and Koreans, they are but a feeble folk, no doubt possessing considerable staying power, but physically weak, with slight muscular development, contracted chest and a marked tendency to anæmia, which however may be largely due to the innutritious national diet of rice, fish, and vegetables. On the other hand the Japanese stand intellectually at the head of all Mongolic peoples without exception. In this respect they rank with the more advanced

Mental qualities.

[1] Dr F. H. H. Guillemard in letter to A. H. Keane, Aug. 2, 1895.

[2] New York *Nation*, quoted by the *Academy*, Sept. 8, 1894.

European nations, being highly intelligent, versatile, progressive, quick-witted, and brave to a degree of heroism unsurpassed by any race. The sense of personal honour, so feebly developed amongst other Asiatics, became a passion under the mediæval feudal system, and led to astounding acts of devotion and self-sacrifice, as well as to deeds of incredible ferocity, of almost daily occurrence. With much enterprise and originality is combined an imitative faculty surpassing even that of the Chinese, as shown by the fact that their first steamer with engines complete was constructed solely from the directions given in a Dutch treatise on the subject. These varied mental qualities explain the rapidity with which the Japanese, the barriers of exclusion once broken down, have taken their place in the comity of the western nations. From the mental standpoint the contrast observed between the Japanese and their Korean neighbours is all the more remarkable since the former are not only physically related to the latter, but are also indebted to them for much of their culture. At one time Korea was a flourishing centre of the ceramic and other arts, and from Chinese or perhaps Manchu materials the natives have developed a syllabic alphabet. But for no apparent reason they have for centuries been retrogressing, and they now "seem the dregs of a race[1]." Their decay may perhaps be accredited to political institutions eminently calculated to yield such results.

The "Hyperboreans."

Formerly the expression "Hyperboreans" was collectively applied to the Chukchi, Koryaks and other Arctic peoples of North-east Siberia, who were supposed to form a homogeneous group with the Eskimo dwelling under corresponding high latitudes in the New World. But if they ever possessed ethnical unity, the Asiatic and American branches of this group now stand as widely apart from each other as both do from the original Mongolo-Tatar stock. In our Family Tree the divergence is shown in the bough to the extreme left, where the Eskimo are seen to occupy a branch by themselves, breaking away from the other members of the group soon after the common severance from the Mongolo-Tatar connection.

[1] Mrs Bishop, *Geograph. Jour.* Feb. 1895, p. 162.

The Chukchi problem.

The Chukchi[1], typical Asiatic "Hyperboreans," are scattered in small groups along the shores of the Frozen Ocean between the Kolyma River and Bering Strait, reaching inland as far as the Anadyr basin. They were first carefully studied by the members of the Nordenskjöld Expedition (1878—9), who describe them as tall, lean, with somewhat irregular features and fair complexion; hence they are classed by de Quatrefages with his "Allophylian Whites," although W. H. Dall speaks of their coppery tinge[2]. But the statements on this

CHUKCHI, N.E. SIBERIA.

SIAMESE.
(*Indo-Chinese Type.*)

and other points are conflicting, owing to the presence in their domain of true Eskimo (Chuklukmiut Innuits), with whom some observers have confused them. The Chukchi appear, however, to differ altogether from the Eskimo in speech, in the distinctly brachycephalous shape of the head[3], and in their light com-

[1] Properly *Tuski*, "Brothers," or "Confederates" (Hooper, *Ten Months among the Tents of the Tuski)*; Nordqvist, however, gives the form *Chauchau*, plural *Chauchauate.*

[2] *Contributions to North American Ethnology*, Vol. I.

[3] "*Zum Theil in extremem Maasse*" (Virchow).

plexion. These characters seem to be explained by the statement of G. Bove that they came originally from the Amur region (Manchuria), and finding the country occupied by the Koryaks and the Onkilons, they drove the former south beyond the Anadyr, and partly merged with the latter, partly compelled them "to cross the Frozen Ocean[1]." The solution of the Chukchi problem, which has been so much discussed, seems therefore to be that they are originally a Manchu or Tungus people, who some centuries ago settled on the north-east seaboard, where they amalgamated with the Onkilon aborigines, that is, with the Angkali, or so-called "Fishing Chukchis," apparently Koryaks still surviving about the Anadyr estuary. The more difficult Eskimo problem, thus disengaged from its Asiatic entanglements, will be more conveniently dealt with in the next chapter.

The Tibeto-Chinese subdivision.

The Tibeto-Indo-Chinese branch, which ramifies to the right of the parent stem, presents on the whole far greater ethnical unity than the Mongolo-Tatar group ramifying to the left. On the Asiatic mainland, where it occupies almost exclusively the great central Tibetan plateau, the southern slopes of the Himalayas, China proper, Indo-China and the Malay Peninsula, it may be almost described as homogeneous. Throughout the whole of this vast region, in which are concentrated probably one-fourth of mankind, the distinctive Mongolic physical type is everywhere in almost exclusive possession of the land, the chief exceptions being a few tracts on the Southern Himalayas and in Farther India, which are occupied by pure or mixed Caucasic peoples. But in the great ocean of Mongol humanity flooding south-east Asia for countless ages these alien groups may be regarded as *une quantité négligeable.*

General physical uniformity.

Hence racial problems of such a fundamental and complex nature as those of the Ural-Altaic domain do not here present themselves. Although physical differences occur everywhere, they are all confined within narrow limits. Apart from the few indicated exceptions there are no aberrant types, nor even any transitional forms, such as those Northern and Western Manchu, Túrki and Finnish groups,

[1] *Bol. Soc. Geogr. Ital.* Dec. 1879, p. 838.

ANNAMESE OF SAIGON.
(*Indo-Chinese Type.*)

BURMESE LADY.
(*Indo-Chinese Type.*)

in which Mongolic and Caucasic characters are inseparably blended, and which consequently resist all attempts at a scientific classification. Tibetans can certainly be at once distinguished from Shans, Annamese from Burmans or Chinese, but all alike are recognised as not merely Mongoloid but distinctly Mongolic peoples, and no question is raised as to their descent from a common Mongol ancestry. Thus a yellowish complexion, narrow slant eyes, small nose, laterally prominent malar bones, black lank hair, and short stature are universally prevalent, and these found in combination suffice to constitute a true Mongol type, despite discrepancies in minor points. Even the shape of the head, which fluctuates within such wide ranges in other divisions

A CHINESE WOMAN OF KULJA. (*Profile.*)

A CHINESE WOMAN OF KULJA. (*Full face.*)

of the Hominidæ, is here somewhat constant, here and there mesaticephalous and even sub-dolichocephalous, but mainly showing a marked tendency towards brachycephaly.

This general uniformity is well illustrated by the prevailing physical and mental characters of the Chinese, the most numerous, and one of the most homogeneous masses of seething humanity on the globe. Certain variations are no doubt presented by the outward traits, such as

Chinese physical Type.

colour of the skin, ranging from a light lemon and almost white shade in the north, to deep brownish hues in the southern provinces; the eye usually more or less oblique, but occasionally nearly horizontal; the nose normally small and concave, but often large and straight especially amongst the upper classes; the stature, which though generally under the average, as with all Mongolic peoples, often presents surprising discrepancies, as seen in the "Chinese dwarfs" and "Chinese giants" from time to time exhibited in Europe. But the bony fabric of the Chinese skull, so variable elsewhere, is singularly constant both in its resemblances to and differences from the normal Mongol cranium. In general it is proportionately longer, and at the same time higher than that of any other yellow group, its height slightly exceeding its breadth, and the cephalic index falling to about 77·25 (subdolichocephaly). The face, in complete harmony with the brain-cap, is always moderately broad, with very high and prominent cheek bones, and jaws developing a slight degree of prognathism[1].

Mental character of the Chinese.

Equally constant are the moral qualities, so much so that the action, for instance, of a Chinese crowd, may under given conditions, be always predicted with much more confidence than that of any other race at the same level of culture. They seem in some respects to be almost as incapable of progress as the Negroes themselves, the only essential difference being that the arrest of mental development comes later in life for the yellow than for the black man. Whether this difference is to be explained by a corresponding retardation in the closing of the cranial sutures, must remain matter of con-

[1] Dr Hamy, who has made a special study of Chinese craniology, says "des mâchoires projetées en un prognathisme étroit et allongé" (*L'Anthropologie*, May, June, 1895, p. 253). This anthropologist here quotes the graphic description given by von Baer of the Chinese skull: "Figurez-vous que vous ayez un moulage de l'un de ces crânes de Kalmoukes [western Mongols], exécuté en quelque substance élastique telle que la gutta-percha, et que vous comprimiez avec les deux mains chaque côté de la voûte, de façon à faire monter le front et saillir plus encore le sommet de la voûte et l'occiput; comprimez plus fortement les arcs zygomatiques, pour qu'ils deviennent plus étroits et que les os jugaux et surtout les maxillaires se profilent en avant, et *vous aurez le type chinois*" (*ib.*).

jecture, at least pending further craniological studies in the direction indicated on pp. 44—5.

Meanwhile it may be pointed out that Chinese culture has been stagnant since the early historic period, despite many impulses from within and without to shake off the chronic state of lethargy in which the nation seems content to vegetate. The late Terrien de Lacouperie has advanced many arguments to show that, before reaching their present homes in the Hoang-ho and Yang-tse basins, the primitive Bak tribes had long been in contact with the civilised Akkad populations of Babylonia. Hence they reached China already a somewhat cultured people, with a knowledge of letters, astronomy, and various industrial arts. In their new environment they continued the development of these arts up to a certain point, after which,—that is, throughout the greater part of their historic life,—they have mostly remained at a standstill, and even now find the greatest difficulty in assimilating Western ideas. This inert mass of semi-civilised savagery offers a dead resistance to all outward pressure, even at the peril of the national stability more than once overthrown by a few rude Tatar hordes. Their religion remains a system of cold moral precepts, combined with the old shamanistic superstitions, beneath a veneer of Buddhistic ceremonial, ancestry and spirit (demon) worship. Their astronomy has scarcely advanced beyond the astrological state, while their medical art continues to be a hopeless mixture of superstitious practices, absurd nostrums, and a few grains of common sense. Excessively courteous amongst themselves, they are rude and aggressive towards strangers, with a deep-rooted feeling of contempt and even hatred of foreigners and all their ways. On the other hand the Chinese, although reckless gamblers like all the Indo-Chinese and Malay peoples, are naturally frugal, thrifty and parsimonious, which, combined with great staying power and capacity for enduring hardships on poor fare, makes them formidable competitors with the western nations in the labour markets of the world. A characteristic trait is their excessive gregariousness, shown in the tendency to crowd together in large villages and cities, so that small hamlets and scattered farmsteads are scarcely anywhere seen in China. In San Francisco 10,000 Chinese are packed together in a space where a

thousand whites would be asphyxiated. This again leads to othe evils, and especially to a low state of morals, which is one of th main objections to the free admittance of Chinese immigrant into European colonies. As exaggerated statements continue t prevail regarding the population of China, sometimes estimate as high as 500 and even 600 millions, it may be remarked that n real census has ever been taken. The official estimates of 41 millions for 1842 and 404 for 1890, are certainly excessive, an have been reduced by Herr Kreitner of the Szechenyi expeditio down to about 150 millions. Other rough calculations give fro 280 to 350 millions, and the population is now generally suppose to be about the same as that of British India taken in its wides sense, say 275,000,000.

Tibeto-Chinese linguistic relations.

Further unity is imparted to the Tibeto-Chinese sub-division c the Mongol family, by its common isolating form c speech, to which is usually applied the misguidin epithet "monosyllabic." It was shown (Ch. IX.) tha monosyllabism is not the original nor the essentia condition of these languages; it is not even a constant characte in their present state, for imperfect dissyllabic compounds aboun in Chinese and Siamese, while true polysyllabic compounds an derivatives are frequent in the Tibeto-Burmese group. Thus i Burmese: *kaun*, good; *akaun*, goodness; *hlukthan*, to ring, fro *hluk*, shake and *than*, sound. In compounds of this type it ma even happen that neither element is any longer found separate, i which case the dissyllable is incapable of decomposition.

A far more important feature than the length of the words i their tonic utterance, the origin and nature of which was neces sarily misunderstood so long as these languages were supposed t represent a primitive condition of speech. It is now clear tha tone gives no support to the theory of a supposed primitive sing song utterance, but that it is a compensating element uncon sciously introduced to distinguish the numerous homophone resulting from the ravages of phonetic disintegration. "Thus th monosyllable *pa* will be toned in six or more different ways t represent so many original dissyllables, *pada*, *paka*, *pana*, *pasa* *pata*..., and some of the Chinese and Shan dialects have, in fact as many as ten or twelve such tones, which unless correctl

uttered lead at once to the greatest confusion, and to all kinds of misunderstandings. Hence these languages are now called isolating and *tonic* rather than isolating and *monosyllabic*[1]."

Tibetan linguistic affinities.

It may perhaps be asked why, this being so, tones in Tibetan "eke out scanty inflections, but do not form an important feature of the language[2]." The explanation is that this language has developed, or possibly never lost, numerous grammatical processes which largely dispense with the use of tones. Such is regular tense formation by internal vowel change, as in *hgel*, to load; past *mkal*; future *dgal*, imperative *k'ol*. Tibetan has this remarkable feature in common with the Kottian of the Yenisei basin, Siberia[3], showing a possible original connection between the Ural-Altaic and the Tibeto-Chinese linguistic families, or at least a parallel line of development with later divergence towards a flexionless analytical state in the Tibeto-Chinese group. Thus might also be explained the intricate grammatical forms occurring in some of the idioms on the South Himalayan slopes, such as the Vayu[4], and especially the Kiranti of East Nepal, whose complicated verbal system shows analogies with the Munda, Sonthal and other Kolarian tongues of Lower Bengal[5]. Through the archaic Lepcha dialect of Sikkim and Bhútan, the Bodo (Kachari) and Dhimal of the Terai, the Dophla, Miri, Abor and Mishmi of the Eastern Himalayas, and the Mikir, Khasi[6], Garo (closely allied to Kachari) and Naga of the South Assam Hills, the Tibetan system passes over to the

[1] A. H. Keane, *Population, Races, Languages, and Religions of the World*, in *Church Missionary Intelligencer*, October, 1894, p. 723.

[2] Prof. John Avery, *Proc. 17th Annual Session, American Philol. Ass.* July, 1885, p. xvii.

[3] Castrèn, *Yen., Ostiak. und Kott. Sprachlehre.*

[4] Specimens by B. H. Hodgson in *Bengal As. Jour.* XXVI., 1858, p. 372.

[5] Dalton, *Ethnology of Bengal*, p. 102. "The verb has a remarkable development, for, though poor in tense-forms, it has a profusion of forms expressive of the relations of subject to object. Participles, too, vary according to the tense of the principal verb. Altogether the possible forms of a Kiranti verb amount to several hundred" (Avery, *ib.* p. xviii).

[6] Khasi, however, would appear to be a stock language of peculiar structure, having no tones although isolating, and showing scarcely any affinity to "the rest of these mountain dialects" (H. Roberts, *A Grammar of the Khassi Language*, 1892).

more isolating and toned languages of Indo-China:—Burmese, Kakhyen, Lushai, Chin, Karen, Mon, Annamese, and the widespread Shan group of Assam, Upper Burma, South China and Siam. But agglutinating forms reappear in Karen, while a distinctly polysyllabic group of untoned languages, with Oceanic (Malayo-Polynesian) affinities, occupies a great part of Camboja and surrounding uplands (Khmer, Kuy, Charay, Stieng, Cham)[1]. These Oceanic affinities have now been traced to the very heart of the continent, and T. de Lacouperie confirms B. H. Hodgson's suggestions regarding the relations of Gyarung on the Tibeto-Chinese frontier with Tagalog, the chief Malay language of the Philippine Archipelago. "The Gyarungs were nothing more nor less than one of the *disjecta membra* (now driven away by the pressure of the Chinese growth west, south, and also east) of a former nucleus of the native population of China, Indonesian in character at the beginning, and gradually diverging from their former standard under the combined influences of their new surroundings, linguistical and others[2]."

Indo-Oceanic linguistic relations.

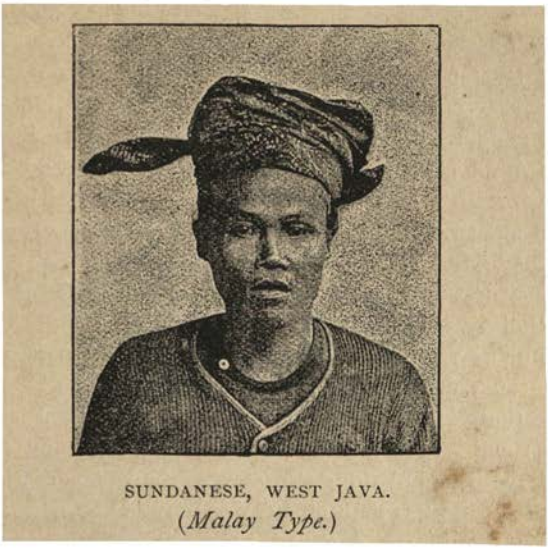
Here it should be noticed that the term "Indonesian," introduced by Logan to designate the light-coloured non-Malay inhabitants of the Eastern Archipelago, is now used as a convenient collective name for all the peoples of Malaysia and Polynesia, who are neither Malays nor Papuans, but of Caucasic type. Such are the Battaks of North Sumatra, many of the Bornean Dyaks, most of the Jilolo natives, many of the Philippine Islanders, and the large brown race of East Polynesia, that is to say, the Samoans, Maori, Tongans, Tahitians, Marquesas Islanders and the Hawaiians, who are commonly called "Eastern Polynesians." Dr Hamy, who first gave this extension to the term Indonesian, points out that the Battaks and other pre-Malay peoples of Malaysia, so closely resemble the Eastern Polynesians, that the two groups should be

The Indonesians.

[1] A. H. Keane, *Relations of the Indo-Chinese and Inter-Oceanic Races and Languages, passim.*

[2] *Formosa Notes*, 1887, p. 69; see also his *Languages of China before the Chinese*, §§ 129–144, and 225. Here is established "the existence in the east of China of dialects of a North Indonesian character."

regarded as two branches of an original non-Malay stock. Although all speak dialects of the common Malayo-Polynesian language, the physical type is quite distinct, and rather Caucasic than Mongolic, though betraying a perceptible Papuan (or Negrito) strain especially in New Zealand[1] and Mikronesia.



SUNDANESE, WEST JAVA.
(*Malay Type.*)

The true Indonesians are of tall stature (5 ft. 10 in.), muscular frame, rather oval features, high, open forehead, large straight or curved nose, large full eyes always horizontal and with no trace of the third lid, light brown complexion (cinnamon or ruddy brown), long black hair, not lank but often slightly curled or wavy, skull

[1] Yet even in New Zealand Dr O. Finsch met "some full-blood Maoris with quite European features, eyes mostly beautiful, full, large, brown to deep brown, straight or well curved nose, full beard, and well developed calves, as is characteristic of all Polynesians" (*Reise in der Südsee*, 1884, p. 25). This is important testimony from an observer who, against his own evidence, is inclined to connect both Polynesians and Mikronesians "als Rasse" with the Malays (p. 1). In the same way he confounds the Philippine Negritoes with the Melanesians under protest from Herr Virchow, who remarks that "ein Craniologe wird nicht leicht Hrn. Finsch zustimmen, wenn er die Negritos der Philippinen einfach zu den Melanesiern zieht" (*ib. Vorwort*, p. viii).

generally brachycephalous like that of the melanochroic European[1].

The Malay problem.

Thus severed from its unnatural Indonesian connection, the Malay problem may have some prospect of a satisfactory solution. In some of the early essays at classification the Malay race found a place amongst the main divisions of mankind (p. 164). Then the very existence of a Malay type was questioned by scientific systematists, and craniologists especially failed to discover a normal Malay head amid the endless discrepancies presented by specimens from the Eastern Archipelago. It could scarcely be otherwise when Indonesian, "Alfuro[2]," Mikronesian, Polynesian, and true Malay skulls were all alike ticketed "Malay" in European collections. Thus "the dimensions which Welcher has found in the Malay nations are especially surprising....We find the Maori, with an index [of breadth] of 73, still on the verge of dolichocephalism...Marquesas 74, Tahitians 75, Chatham 76, Sandwich 77, Borneo Dyaks 75, Balinese 76, Amboynese 77, skulls from Sumatra 77, Mancassar 78. To these mesocephali must be added, as brachycephali, the Javanese and Buginese with 79, Menadorese 80 and Madurese 82...Of the 19 gradations of breadth the skulls of the Malay family occupy no less than nine....According to Barnard Davis the Maori (75) are most inclined to dolichocephalism, while the Javanese (82) appear still more brachycephalic than the Madurese (81)[3]."

[1] Dr E. T. Hamy, *Bull. d. l. Soc. de Géo.* XIII. 1877, *passim*.

[2] This term *Alfuro* is specially confusing. Whatever its origin, whether Portuguese, Arab or local, it never had any ethnical value, being indifferently applied by the Malays to all rude non-Muhammadan peoples in the eastern parts of Malaysia. So *heathen*, from *heath*, originally "rude," "rustic"; *pagan, paynim*, from *paganus*, a "villager." Thus C. B. H. von Rosenberg: "26 villages stretch along the coast [of Ceram], of which 5 are inhabited by Christians, 3 by Muhammadans, 15 by Alfuros [neither Christians nor Muhammadans], while 13 have a mixed population" (*Malayische Archipel*, Part ii. p. 26). This passage also shows that the "Alfuros" were not necessarily the aborigines (as is generally supposed) driven into the interior by the Malay invaders, for, here they are found dwelling on the coast peacefully associated with their Christian and Moslem neighbours.

[3] Oscar Peschel, *Races of Man*, p. 55. So also Prof. Sir W. H. Flower:

NATIVE OF TONGA ISLANDS.
(*Eastern Indonesian Type.*)

Malay physical type.

But when the disturbing elements are removed, the true Malays are seen to present remarkably uniform characters, and Dr Finsch himself was struck by this very uniformity in the subjects from every part of Malayland studied by him at Batavia in 1881[1]. Thus there is, after all, a Malay type, and its characters are such as enable it to be at once pronounced distinctly Mongoloid; one might almost say Mongolic without reservation, but for the somewhat straight nose and large round and generally horizontal or but slightly oblique eyes. Yet even here is seen the peculiar Mongol fold of the upper lid, "just as with the Chinese," says Finsch (p. 28). Other marked Mongol features are very prominent malar bones, a dirty yellow or brownish olive colour, very black lank hair, scant or no beard, low stature ranging from little over five feet to five feet four or five inches, brachy or sub-brachycephalous head[2].

Thus is fully justified the Oceanic Mongol group, which in our Family Tree is seen to ramify from the Tibeto-Chinese stem eastwards to Formosa and south-westwards to Madagascar. The Malay affinities of the Formosan aborigines have long been recognised[3], and here it will suffice to add that in the island no trace has yet been discovered of a Negrito or Papuan element after a search of about two hundred years since their existence was first reported by the Dutch. In Madagascar, on the contrary, the Malay type even of the dominant Hovas has been considerably modified by ad-

Malagasy affinities.

"There is certainly no very great uniformity in the characters of the skulls in our collections which are said to belong to Malays" (*The Native Races of the Pacific Ocean*, 1878, p. 41).

[1] "Zunächst war mir bei diesen malayischen Völkern, was allgemeinen Typus, Grösse und Hautfärbung anbelangt, die im Allgemeinen herrschende Uebereinstimmung auffallend, eine Uebereinstimmung wie ich sie in ähnlicher Weise bei Südsee-Völkern nicht beobachtet hatte. Dieselbe gipfelt vorzugsweise in dem starken Hervorspringen der Jochbogen, welches Südsee-Völker in weit geringerem Grade, zum Theil kaum zeigen" (*ib.* p. 27).

[2] Cephalic index of Sundanese 83·9; of Javanese 78·2 (J. Deniker and L. Laloy, *Les Races exotiques*, &c., in *L'Anthropologie*, 1890, No. 5, p. 543).

[3] Mr Taylor, however, brings some of the tribes from the north, the Pepohoans from Liu-Kiu, the Tipuns probably from Japan, &c. (*China Review*, Vol. XVI. No. 3).

mixture with a Bantu Negroid element from the neighbouring mainland. What is specially remarkable in this island is the surprising uniformity of speech, a pure Malayo-Polynesian language being everywhere current, with but slight dialectic variety, amid semi-cultured and rude Malayo-African populations (p. 205).

Malayo-Polynesian linguistic relations.

It is noteworthy that the relations of Malagasy are not so much with the standard Malay, as with some of the more remote and more archaic members of the Oceanic family, such as the Kavi, parent of modern Javanese, the Tagalog and Bisayan of the Philippines, the Maori, Tahitian and other Polynesian tongues. Thus the numerals *seven* and *eight* correspond in all these languages (roots *pito*, *valu*), but not in Malay (*tujoh*, *delapan*)[1]. The explanation is that the early Oceanic migrations took place in remote times, long before the rise and expansion of the Malay nation as now constituted. This energetic race of sea-rovers and conquerors had its cradle in the Sumatran district of Menangkabau, whence they began to spread abroad, apparently not earlier than some eight or nine hundred years ago, founding permanent settlements in the Malay Peninsula[2], around the Bornean seabord and as far east as the Moluccas. Through their maritime expeditions and trading relations, their simple and harmonious but comparatively modern Sumatran dialect became the general medium of intercourse, a sort of *lingua franca* throughout the whole of Malaysia, and even in parts of Papuasia and along the Cambojan and Annamese coastlands. But there is nothing to show that these later Malays, the *Orang Maláyu*[3] in the stricter sense of the term, ever

[1] "La première racine, *pitou*, dont on ne trouve pas trace en malais, se retrouve simultanément en Madagascar, aux Philippines, à Timor, dans la Nouvelle Zélande et à Taiti" (Aristide Marre, *Les Affinités de la Langue Malgache*, &c., Leyden, 1884, p. 154). And Melanesia might have been added, for "the Melanesian decimal series of numerals is not borrowed from the Malay...but is identical with that generally in use in the Indian Archipelago and Madagascar" (Codrington, *The Melanesian Languages*, p. 229).

[2] According to the national records this region was reached by a colony direct from Menangkabau in 1238, the foundation of the first settlement, Singapore, dating from that year.

[3] This term ملايو Maláyu, which has acquired such a prominent ethnical and linguistic position, is of unknown origin, possibly the name of an obscure

penetrated either into Polynesia, or westwards to Madagascar, at least in sufficient numbers to form distinct settlements and acquire a dominant influence in those regions. Hence the diffusion of the Malayo-Polynesian speech, for which a better name would be Indo-Pacific or simply Oceanic, is not due to, but long ante-dates, the diffusion of the Sumatran people, from whom the inhabitants of the Eastern Archipelago are now named and are wrongly supposed to be sprung, or at least to have acquired their "Malay" speech. Thus may now be understood the otherwise inexplicable phenomenon, that the Malagasy language has on the whole perhaps more intimate relations with those of the Philippine Archipelago, of Melanesia, and even of Easter Island "within measurable distance" of South America, than with the standard Malay of Menangkabau, almost the nearest land in Malaysia to Madagascar. All are independent offshoots of the common Oceanic speech, which has its roots in Central Asia and of which Malay proper is relatively speaking quite a recent development.

Ethnical relations in the Philippine Islands.

In the Philippine Islands the conflicting statements of observers correspond with the intense ethnical confusion prevalent amongst the motley populations of the Archipelago. Here "the constant mingling of different races from China. Malaya, and parts of Melanesia and Polynesia has created a mixture of which the component parts are almost undiscernible[1]." Nevertheless the means of introducing some order into this chaotic field seem to be supplied by the writings of such recent observers as Dr Montano[2] and Prof. Blumentritt[3]. Apart from the true Negrito aborigines

Sumatran tribe, which rose to power under some renowned chief in the 10th or 11th century of the new era. The derivation from the Javanese *m-layu*, to flee, cannot be accepted, because the Malays are not "fugitives" but everywhere aggressors; nor is it credible that they would accept from strangers a term of reproach as their national designation. That this has always been their national name is evident from the fact that on reaching the mainland in the 13th century they called it *Tanah Maláyu*, "Malayland," whence the present expression *Malay Peninsula*.

[1] *Nature*, Oct. 7, 1886.

[2] *Voyage aux Philippines*, 1885, *passim*.

[3] Numerous papers in *Globus*, Vol. 50 and elsewhere. See also Capt.

dealt with in Chap. XI, Blumentritt distinguishes two separate "Malay" invasions, both pre-historic. Montano also recognises these two elements, which, however, he more correctly calls *Indonesian* and *Malay*. The Indonesians, whom he affiliates to the "Polynesian Family," were the first to arrive, being followed by the Malays and then in the 16th century by the Spaniards, who were themselves followed, perhaps also preceded, by Chinese and others. Thus Blumentritt's Malays of the first invasion, whom he brings from Borneo, are Montano's Indonesians, who passed through the Philippines during their eastward migrations from Borneo and other parts of Malaysia. The result of these successive movements was that the Negritoes were first driven to the recesses of the interior by the Indonesians, with whom they afterwards intermingled in various degrees. Then the Indonesians were in their turn driven by the Malays from the coastlands and open plains, which are consequently now found occupied mainly by peoples of true Malay stock. Such are the Tagalas, Bisayas, Bicols, Pampangos, Ilocanes and Cagayanes, besides the so-called "Moros," that is, the Muhammadan Malays of the Sulu Archipelago, Paláwan and Mindanao. Then with peaceful times fresh blends took place, and to previous crossings are now added Spaniards and Chinese with Malays, these "quadroons" and "octoroons" with Indonesians, and even here and there with Negritoes. It has thus become difficult everywhere to distinguish between the true Malays and the Indonesians, who are also less known, dwelling in the more remote upland districts, often in association with the Negritoes, and not always standing at a much higher grade of culture. Of these savage Indonesians the tribal groups are endless, the more important being the Igorrotes studied by Dr A. B. Meyer[1], the Tinguianes, Guinanes, Apayos, Gaddanes, Bagobos, Tagabawas, Samals, and Mandayas. Thus the Philippine half-castes may be roughly classed as Negrito-Indonesians, Malayo-Indonesians, Malayo-Europeans, and Malayo-Chinese, the Indonesian element giving here as elsewhere in Oceanica the clue to the puzzling ethnical entanglements.

L. Gatta's summary of *Jordana y Morera's* investigations, in *Boll. Ital. Geo. Soc.* Feb. 1886, p. 122 *et seq.*

[1] *Eine Weltreise*, &c., Leipzig, 1885.

CHAPTER XIII.

HOMO AMERICANUS.

America peopled from the Eastern Hemisphere during the Stone Ages—The bronze age of Chimu (Peru) no proof of later intercourse between the Old and New Worlds—Hence the American aborigines are the direct descendants of palæolithic and neolithic man—and their later culture is consequently an independent local development—But Homo Americanus is not autochthonous, but a specialised form of a Mongol prototype—General Uniformity of the American physical type—Texture of the hair; colour of the skin—"White" and "Black" aborigines no proof of early migrations from Europe or Melanesia—Arguments of De Quatrefages discussed—The Japanese myth exposed—The "stranded junk" argument—Culture of the early Stone Age identical in both hemispheres—But after that age the arts and industries show continuous divergence in America—Argument based by Retzius on the two types of American crania—Contrasts between the present Mongol and American physical types—Mental Capacity of the American aborigines superior to the Negro, on the whole inferior to the Mongol—But the Cranial Capacity inferior both to Mongol and Negro—Striking uniformity of the mental characters of the aborigines—in North America—in South America—Uniform character of American speech in its general morphology—Fundamentally distinct from the structure of the languages of the Old World—Surprising number of American stock languages despite their common polysynthetic type—Classification of the aborigines must always be mainly based on language—Family Tree of Homo Americanus—America probably peopled by two routes—From Europe by palæolithic, from Asia by neolithic man—Present distribution of the two types—The Eskimo question—Its solution—Prof. Mason's theory of the peopling of America from Indo-Malaysia—Negative Objections to this theory—Positive Objections—True explanation of the coincidences between certain usages and mental aspects of the inhabitants of the Old and New Worlds—Due not to contact or borrowings, but to their common psychic constitution—Results of the discovery and re-settlement of America on the aborigines in Latin America—In Anglo-Saxon America—The Anglo-American type due, not to miscegenation, but to convergence.

America peopled from the Eastern Hemisphere during the Stone Ages.

ELSEWHERE (Chap. X.) general reasons were given for detaching the American aborigines from the Mongolic connection, and treating them independently, as one of the four main divisions of the Hominidæ. It was also shown (Chaps. V., VI.) that while a Neolithic age is universally accepted for the New World, there are also good grounds for accepting a Palæolithic age for at least the

southernmost parts (Patagonia, Fuegia) of that region. On the other hand there are no records of any migrations between the Eastern and Western Hemispheres in pre-Columbian or pre-Norse times throughout the historic period, which at all events for Egypt and Babylonia goes back some 8000 or 10,000 years from the present time (p. 56). Outside those earliest centres of civilization primitive man was at that remote period everywhere at a low plane of culture, from which it follows that, if America was peopled from the Old World, the occupation took place and was practically completed during the two stone ages.

The general absence of bronze as well as of iron excludes those metal periods, while the copper age was in the east too short and of too ill-defined a character to be here taken into account. Iron was unknown except in meteoric form. But bronze implements in great number and variety have been collected amid the vast ruins of Chimu, a Peruvian city, capital of an empire overthrown by the Incas (Squier, *Peru, passim*). The occurrence of *chumpe*, as the alloy is locally called, in this district, and nowhere else in the New World, is almost equally inexplicable, whether we suppose the metal itself to have been prepared on the spot, or only introduced and wrought into diverse objects by the local workers in bronze. The few bronze objects, little bells and other trinkets, found in the Isthmus of Panama and in Mexico, appear to have been imported, perhaps from Peru[1]. But for Chimu a real bronze age may be claimed. The people were skilled in other arts and their earthenware was so beautiful in form and finish that they may be called the "Etruscans of the New World." Deposits of tin occur both in Mexico and in Bolivia, and some of the mines appear to have been worked in pre-Columbian times, so that the Chimu people may have been expert metallurgists as well as artificers. In any case this solitary instance scarcely warrants the assumption

The bronze age of Chimu (Peru), no proof of later intercourse between the Old and New Worlds.

[1] Mr W. H. Holmes suggests that the bronze objects found in some of the Chiriqui graves may be post-Columbian, "pointing toward the continuance of the ancient epoch of culture into post-Columbian times" (*Ancient Art of the Province of Chiriqui*, in *Sixth Annual Report of the Bureau of Ethnology*, Washington, 1888, p. 186).

of direct trading relations between the two hemispheres in the bronze age, that is, long before the dawn of Chimu culture. On any later contact history is silent.

Hence the aborigines are the descendants of palæolithic and neolithic man,

It may thus be inferred that, before the discovery, America received no ethnical contributions of any importance from any quarter after the stone ages, and consequently that the aborigines are mainly the direct descendants of palæolithic and neolithic man. If this inference can be established, the further inference will follow of itself, that all their arts and institutions, everything comprised under the general expression "culture," are indigenous, those only being excepted which may be traced to the pre-metal ages. These inferences may thus be briefly formulated: Homo Americanus branched off from Homo Mongolicus in the Stone Ages, and since then has pursued an independent local evolution, arrested by the arrival of Homo Caucasicus in late historic times.

and their culture is a local development.

But Homo Americanus is not autochthonous, but a specialised form of a Mongol prototype.

It is evident that, owing to the absence of the higher apes, the New World cannot be regarded as an independent centre of evolution for man himself. Hence for the American division of the Hominidæ there is no question of a transition from an anthropoid precursor, but only from an already specialised human form. On the other hand the American undoubtedly approximates nearest to the Mongol form, and as the latter cannot be derived from the former, it follows, as is now generally allowed, that the American type has been differentiated from a generalised Mongol prototype. Thus is established without any lengthy argument, the first assumption of our formula: "Homo Americanus branched off from Homo Mongolicus."

General uniformity of the American physical type.

This is also in accordance with physical, geographical and other considerations. A strong argument for the substantial unity of the American race is based by Messrs Flower and Lydekker on the great difficulty of forming within the group any natural divisions "founded upon physical characters[1]." Thus the hair is every-

[1] *Op. cit.* p. 752.

where black, straight, lank and long, often very long, falling down to the waist and even lower. The colour also "varies but little," generally presenting different shades of a reddish, olive, or coppery brown, whence the expression "Redskins." Although specially characteristic of the North American Prairie Indians, this coppery tint also prevails in parts of South America, as amongst some of the Amazonian tribes, whose "skin is of a coppery or brown colour of various shades[1]," and especially amongst the natives of Guiana, whose colour is described by Mr E. im Thurn as a "very red cinnamon" though differing considerably in the different tribes[2]. On the elevated plateaux it passes to a more decided brown, and in the Brazilian woodlands often to a leathery or faint yellowish hue, as amongst the Botocudos of the eastern seabord. Both "white" and "black" shades are also mentioned, and on these terms, which should obviously be taken in a relative sense, some fanciful theories of prehistoric and even historic immigrations from Europe and Africa have been built. De Quatrefages devotes many pages to the discussion of these questions, and although obliged to give up "immigration *en masse*" (*op. cit.* p. 559), and to "oppose conjecture to conjecture" (p. 555), he still believes that Melanesians or Papuans gained a footing and maintained themselves on the shores of California, because some of the local tribes are spoken of as "black." "The faces of the Achomawis," says Mr Powers, "are broad and black, and calm and shining with an Ethiopian unctuousness." But we had already been warned by La Pérouse that these Californians were in no sense "Negroes," but obviously of Mongol stock, as shown by their lank hair, high cheek-bones and oblique eyes. So also with the extinct "black" but lank-haired Charruas of South Brazil, and the "white" Antisians (Guarayos, Yuracares) of the east Peruvian and Bolivian slopes, these possibly descended from some "white Africans" (Guanches, Búbis) stranded on the Brazilian coast and penetrating thence across the Amazonian forests to the foot of the Cordilleras. Surely it would be simpler to regard these "bearded savages" as the result of crossings with European

"White" and "black" aborigines no proof of early migrations from Europe or Melanesia.

[1] A. R. Wallace, *Travels on the Amazon and Rio Negro*, p. 478.

[2] *Among the Indians of Guiana*, 1883, p. 189.

NATIVE OF ZAMBIRA, ECUADOR.

BLACKFOOT INDIAN.
(*Redskin Type.*)

NATIVE OF OTOVALO, ECUADOR.

NATIVE OF VANCOUVER I.

captives, of whom there was no lack during the Indian wars, or even as runaway Spaniards adopting the native speech and usages as others have done in Bolivia and Yucatan.

That the reports of white and bearded natives must be received with caution, is evident from the current accounts of the Mayorunas of the Marañon (Upper Amazons) and its Ucayali and Yavari tributaries, who are also said to have thick beards and white skins, and who are supposed to be descended from some of the Spanish soldiers left in the district after the murder of Pedro de Ursua by Lopez de Aguirre. But it was Aguirre's followers who had received the name of *Marañones*, "People of the

NATIVE OF SAQUISILI.
(*Hispano-American Mixed Type.*)

Marañon," and this word was afterwards confused with *Mayoruna*, the name of a full-blood Indian tribe, who are neither white nor bearded[1]. The Spanish Marañones have disappeared, though they survived long enough for their European features to be transferred by popular report to the Mayoruna aborigines. Similar reports

[1] "L'on ajoutait qu'ils ont encore les traits européens et la barbe noire très épaisse. Il n'en est rien: loin d'être fils ou métis d'Espagnols, les Mayorunas sont, au contraire, des Indiens de race pure." (Reclus, XVIII. p. 550.)

long prevailed regarding the mysterious Guatusos of the Rio Frio, Costa Rica, who were said to have fair hair and blue eyes, due to contact with the English buccaneers, or with some Spanish fugitives. But since they have begun to visit the neighbouring markets of San Carlos and San José, the Guatusos are found to have black hair, dark skins and high cheek bones, like the Nicaraguan Chontals to whom they appear to be related[1]. The Oyariculets of French Guiana, also reported to be white with blue eyes and light beard, are now found to be "like other Indians[2]."

The Japanese myth exposed.

Faint traces of the Norse settlers may perhaps be allowed on the north-east coast[3]; but is it not a violent assumption to talk of a "Scandinavian dispersion" over half the Northern Continent; to bring "Ainu whites" to Labrador and Hudson Bay; to build hypotheses on the exploded Fusang legend of Chinese Buddhist pilgrims, or to take seriously M. Guillemin-Taraire's statement that "the members of a Japanese embassy were able to converse right off (à première vue) with certain natives of Sta Barbara County" [California], if not to recognise the rock carvings executed by the neighbouring coast tribes, which we are assured are not to be distinguished from "objects of a like nature fashioned in Japan" (p. 558).

Lately Mr O. H. Howarth described before the Anthropological Institute some of these "rock inscriptions" which he had seen in Sinaloa, West Coast of Mexico, which he also traced to a Japanese source, and which "seem likely to furnish an important link in the problem of the prehistoric colonization of Central America[4]." But amongst the audience was Mr Daigoro Goh, of the Japanese Consulate-General in London, who at once snapped this "link" with the remark that "I do not see any resemblance in those figures of the inscriptions with the prehistoric characters in Japan

[1] Reclus, XVII. p. 304, English ed.

[2] H. A. Coudreau, *Bul. de la Soc. de Géograph.* June 15, 1891.

[3] To this source might, for instance, be attributed the high degree of dolichocephaly observed amongst the Micmacs of Nova Scotia, although even this is regarded by Dr Franz Boas as evidence not of Norse but of Eskimo contact. "Archæological facts tend to indicate that the Eskimo must have lived along the coast of New England at one time" (*Anthropology of the North American Indians*, p. 45).

[4] *Jour. Anthrop. Inst.* February, 1894, p. 226.

known as Hibunci or sun letters; nor do I find any similarity in the Ainu writing. Moreover, I should like to remind the lecturer, who said that one of the inscriptions has the crest of the Prince of Satsuma, that that identification will not give any weight on [to] his assertion, since the former must be a thing of several thousand years old, whilst the latter has had only a seven or eight centuries existence" (p. 231). Unfortunately Japanese scholars have only lately begun to take part in discussions of this nature, so that the numerous other links like those of Sinaloa and California which abound in uncritical ethnographical writings still remain to be snapped.

The "stranded junk" argument.

Meanwhile it may be pointed out that all these fancied early historic relations of the natives with the Asiatic peoples are not only unsupported by any direct evidence, but are otherwise involved in tremendous difficulties. Because a stray Chinese or Japanese junk may have occasionally been stranded on the western seabord since the discovery, it is argued that similar waifs may have arrived in remoter times, and given rise to the local cultures. But there were no craft capable of traversing the Pacific Ocean in the neolithic age, when America was already strewn with monuments from the Mississippi basin to the Argentine pampas. At that remote epoch, without going still further back to the "discredited" palæolithic man, there were neither specialised Japanese, who according to the national traditions reached their present homes less than 3000 years ago, nor specialised Chinese, who according to T. de Lacouperie migrated from Western Asia to the Hoang-ho valley since the rise of Akkad culture in Babylonia. And if any of these historical peoples ever arrived in sufficient numbers to build up a civilization in the New World, the Asiatic origin of such a civilization would be self-evident, and not the subject of heated debate between different schools of learned archæologists. Man cannot separate himself from his immediate associations, and the eastern founders of such communities must necessarily have brought with them their arts, their speech and written records, their domestic animals, their more useful cereals and other plants, without which they must have themselves speedily perished or been absorbed in the surrounding native populations. But no

trace of these things was found in any part of the New World on the discovery. There was neither the rice of the Malays and Japanese, nor the tea of the Chinese, nor yet the wheat, barley, oats or rye of the western nations, nor the horse, camel, ox, sheep, goat, pig or poultry of the Eastern Hemisphere, nor the iron now proved to have been known to the ancient Egyptians and Assyrians; lastly, not a single written document nor an echo of the speech of any of the Asiatic, African or European peoples. All was of indigenous growth, maize, potato, llama, mounds, casas grandes, Toltec, Nahua, Maya, Peruvian and Aymara monuments and languages, man himself, at all events since the stone ages. "To say that the Americans are derived from the Chinese, the Japanese, the Malays or the Polynesians, is highly unscientific. Theoretically it is probable that the language, the physique, the social and religious culture, and the geographical distribution of all these peoples, have undergone radical changes since that early time, and that since their present stages or any approximation to them have been attained, migration to America has not been in progress[1]."

But it may be asked why these migrations should be arrested at so early a date, and not continued into later times, when man might be supposed better equipped for such peaceful or hostile movements? Two answers may be given to this question, which is often raised, but usually allowed to go unchallenged. In the first place it might suffice to observe that there is no evidence, where abundant evidence should be forthcoming, that any later migratory movements did take place between the Eastern and Western Hemispheres. The proofs relied upon by the advocates of Asiatic or European influences are invariably found, when critically examined, to possess no weight, while many must be set aside as palpable frauds. Such are the stone carvings from Mount Pisgah, North Carolina, some specimens of which were brought to Europe by the late Mr Mann S. Valentine of Richmond in 1882, and exhibited at the London and Berlin Anthropological Societies[2]. About the good faith of Mr Valentine himself there never could be any doubt. But it has since been ascertained that "these articles

[1] De Nadaillac, *Prehistoric America*, English ed. p. 523.

[2] A. H. Keane, *On North Carolina Stone Carvings*, *Jour. Anthrop. Institute*, June 1882.

were made from the soapstone found in that region by some persons who had learned how to give them the appearance of age....As a proof of the correctness of his statement Mr Emmert [of Washington] had the same parties who stated they had made some exhibits for Mr Valentine, make quite a number of similar articles for the Bureau[1]." A similar object-lesson is afforded by the famous "Lenape Stone," to which Mr Mercer has devoted a special monograph, without convincing the scientific public that it is anything more than a clumsy copy of a genuine mammoth carving found in the cave of La Madeleine, Perigord, in 1864[2]. The monuments of North America and the associated objects were never observed with more intelligent eyes than those of the traveller, Bartram, whose conclusion was that "none of them discover the least signs of the arts, sciences or architecture of the Europeans, or other inhabitants of the Old World; yet evidently betray every mark of the most distant antiquity[3]."

In the second place, although later and more civilised peoples were undoubtedly better equipped for spreading abroad than were those of the Stone Ages, they lived under different conditions, by which the difficulties of migratory movements were immeasurably increased, and in some regions rendered practically impossible. When man first became specialised, he ranged, like the surrounding faunas and floras, slowly but steadily over the still unoccupied spaces. He drifted, so to say, unconsciously hither and thither, impelled or attracted now in one direction, now in another, by various causes, such as overpeopling, changed climatic relations, greater or less abundance of food and facilities for obtaining it. He thus gradually filled all the inhabitable parts of the earth,

[1] Cyrus Thomas, *Twelfth Annual Report of the Bureau of Ethnology*, Washington, 1894, p. 347. Here also may be seen an exposure of the Davenport and other inscribed tablets written on some eclectic system in various Old World scripts, and from time to time extracted from the mounds where they had been deposited by the "authors" for the purpose of mystifying the credulous archæologists of North America. "A consideration of all the facts leads us, inevitably, to the conclusion that these relics are frauds, that is they are modern productions made to deceive" (pp. 642—3).

[2] H. C. Mercer, *The Lenape Stone, or the Indian and the Mammoth*. New York, 1885.

[3] *Travels*, 1791, p. 522.

following the lines of least resistance, and like the waters that seek their level, overflowing into all the empty spaces. But when these spaces were themselves flooded by the tide of humanity, there necessarily ensued a period of rest, followed at intervals by the ebb and flow of fresh currents setting in all directions. To the first movement correspond the two Stone Ages, when in fact the whole world, America included, was peopled to its utmost inhabitable limits (Chaps. V. VI.)[1]. To the later movements of ebb and flow correspond prehistoric and historic times, when, the empty spaces being already occupied, every advance involved a conflict, in which those perished who were least fitted for the struggle. But before the development of navigation insular regions, such as America, could scarcely be approached at all in sufficient numbers to overcome the dead resistance of the more or less dense populations in possession of the favourable districts. Even the Norsemen failed to effect a permanent footing, and it must now be obvious that small bands arriving at intervals in praus or junks from the Asiatic seabord could produce no appreciable impression either socially or ethnically, but must have been successively absorbed by the surrounding aborigines. The few hyperboreans that may have crossed over by Bering Strait in later times could have no influence of any kind beyond the "Eskimo fringe," while the crews of any European vessels stranded on the inhospitable Brazilian coastlands could do little except supply a

[1] "You know that before there was a beast of burden humanity had found its way over the earth on foot, and that in the simplest craft, without compass and with only Nature's pilots, every water had been traversed and every habitable island in all the seas had been discovered and settled. It is a long journey from the supposed cradle land of our species to Tierra del Fuego; but it had been successfully accomplished in prehistoric times" (O. T. Mason, *Similarities in Culture*, in *The American Anthropologist*, VIII. April, 1895, p. 102). With regard to the islands, however, it may be pointed out that many, such as those of the Eastern Archipelago, were certainly connected by continuous land with the adjacent continents in comparatively recent geological times. In the Pacific Ocean, also, some, such as New Zealand, occupied far wider areas than at present, thereby proportionately diminishing the distances to be navigated. Groups and solitary islands far removed from all land—the Mascarenhas, the Galapagos, St Helena, Ascension, &c.—had never been reached by primitive man, and were found uninhabited when discovered in recent times.

meal for the ferocious Tamoyo and Botocudo cannibals. Thus there are positive as well as negative reasons for believing that after the Stone Ages the American aborigines remained secluded in their insular domain without any serious contact with the peoples of the Old World prior to the discovery.

Culture of the early Stone Age identical in both hemispheres.

Although Virchow's statement[1] may be true that the most practised archæologist will fail to detect any material difference between the stone implements of the two hemispheres, this merely implies that the arts of Palæolithic and Neolithic man were pretty much alike everywhere, and that, as here maintained, the peopling of America dates from and ceases with the Stone Ages. But divergencies already appear in neolithic times, and the rude ornamentation of the potsherds found in the New England shell-mounds shows little resemblance to that of the oldest European pottery[2]. The stone implements are identical; the beginnings of decorative art already differ. The inference is obvious—America owes nothing to the Old World after the Stone Ages, since when it has pursued an entirely independent ethnical and social evolution, undisturbed by, and unconscious of, the occasional arrival of a stray Japanese junk, Malay prau, or solitary Buddhist wanderer.

But after that age the arts and industries show continuous divergence in America.

Hence—despite certain apparent coincidences and analogies due to the fundamental unity and common psychic nature of man—the local arts, and social and religious institutions continue to diverge in proportion as they reach higher planes of culture. "That the Toltec builders of the low truncated Mexican pyramids were a different people from the pyramid builders of the Nile Valley, and that the mummies of the Ancon necropolis and other parts of Peru were of a different stock from the Egyptian mummies is sufficiently evident from the texture of the hair alone. The hair of the old cultured races of America was the same as that of all the later American races, uniformly lank, because cylindrical in section. The hair of the old Egyptians, like

[1] *Anthropologie Amerika's* in *Verhandlungen der Gesellschaft für Anthropologie*, 1877, pp. 144-56.

[2] *Peabody Museum Report*, 1872. The types and processes were already widely diffused, as far south as Florida and west to Illinois and Missouri.

that of the modern Fellahín, is on the contrary uniformly wavy, because more or less oval in section. The religions again, of the Red Man, we are told by Carl Schultz-Sellack, Oscar Loew, and other good observers, are 'essentially astrological, based on star, sun and moon worship,' with which was often associated an intricate method of measuring time built on a series of twenty constellations[1].' The sun, says Loew, 'is the god of most Indian tribes. He diffuses warmth and nourishment for us and our animals; why shall we not worship him? observed to me on one occasion Masayamtiba, a Moqui Indian' (*ib.* p. 265). This Masayamtiba was a better philosopher than those ethnologists who seek for the origin of such a simple cult in the remote corners of the globe, rather than in the beneficial influence of the heavenly bodies which shine alike for all mankind. The four great gods of the Mayas, the 'props of the heavens,' answered to the four great Mexican gods of the four quarters of the compass, all being associated with the four elements of wind, water, fire and earth. But to what does either system answer in the polytheistic creeds of the Hindus, Assyrians, Babylonians, or other nations of antiquity? There is something similar in the Neo-Buddhistic teachings; but Buddhism, even of the oldest type, is much too recent to explain anything in the religious worlds of Mexico or Yucatan. Waitz[2] well observes that a common belief in a universal flood, or in the periodical destruction of the world, whether by fire, water, storms or earthquakes, and analogous or parallel lines of thought, afford no proof whatever in favour of affinity[3]."

Argument based by Retzius on the two types of American Crania.

Such affinities with what de Nadaillac calls the "full-fledged races" of the Eastern Hemisphere have been sought by anthropologists in the shape of the skull. Andreas Retzius amongst others grouped all the American aborigines in two great divisions: 1. The western highlanders, occupying the Rocky Mountains and the Andes with the intervening Pacific seabord; 2. All the rest, mainly lowlanders, from the western uplands to the shores

[1] *Zeitschr. für Ethnologie*, 1879, p. 209.

[2] *Anthropology*, p. 255.

[3] A. H. Keane, *American Indians* in *Encyc. Britannica*, ninth ed. p. 823.

of the Atlantic. The highlanders, assumed to be all round-headed, he classed with the brachycephalous Mongols and Malays; the lowlanders, assumed to be long-headed, he traced to possible Berber and Guanche migrations from North-West Africa and the Canary Islands. We have seen (Chap. XI.) that Europe and North America were probably connected by continuous land in miocene if not later times, and Mme. Marie Pavlovna has recently shown that the close resemblance between the Eurasian and American mastodons adds much force to the hypothesis of a connection between the two continents during the Tertiary period[1]. This will account for the peopling of the New World in pleistocene times, but it will give no support to the later movements of migration implied in the Swedish anthropologist's generalisation, the postulated tertiary continent having vanished in the low latitude of the Canaries—if it ever extended so far south—long before the arrival of the cultured Guanches in the Archipelago.

It is also to be noticed that South America was already occupied by both long- and round-headed races (Lagôa Santa, Pampas, p. 99) in the first Stone Age. Since then America, like other parts of the globe, has been the scene of constant ethnical movements, shiftings, dislocations and dispersions, so that it would be surprising to find the two elements now disposed in the symmetrical order assumed by Retzius. The sharp distinction drawn between brachycephalous highlanders and dolichocephalous lowlanders has in fact no substantial basis, and a closer study of the aborigines, after making every allowance for the practice of artificial cranial deformation which is wide-spread in some regions, has placed beyond doubt the intermingling of cranial types almost to as great an extent in America as in Malaysia itself. Thus Prof. Kollmann[2] finds for the northern Continent, excluding Mexico, 15·75 per cent. dolicho; 40·26 meso; 25·81 brachy; 11·96 hyper-brachy; and 4·48 ultra-brachy through deformation, without any marked relation to geographical areas. According to de Quatrefages and Hamy[3] the Algonquians are sub-brachy in the north,

[1] *Bull. de la Soc. des Naturalistes de Moscou*, 1894, No. 2.

[2] *Die Autochtonen Amerika's* in *Zeitschrift für Ethnologie*, 1883, p. 1 *et seq.*

[3] *Crania Ethnica*, p. 469 *et seq.*

nearly dolicho in the south, and intermediate in the west. Both the Mexicans and Peruvians, who ought to be brachy, are subdolicho (78·1 and 78·7, Broca), and MM. Deniker and Laloy find that the Aztecs are also dolicho or intermediate, "never brachycephalous[1]." All the Eskimo irrespective of locality are highly dolicho, but increasing from the west (75·3) and centre (75·1) to the east (71·3)[2]. Nine Omahas (Dakotan lowlanders) measured by M. Manouvrier gave a mean of 83·8, and the Dakotans of Col. Cody's troop measured by MM. Deniker and Laloy (*ib.* p. 541) a mean of 80·66; yet all these ought according to the theory

PAEZ INDIAN OF TACUZO, COLOMBIA.
(*Muisca Type.*)

to be dolicho. In South America, similar contradictory results have been obtained, and here the lowland Charruas (brachy) change place with the highland Muiscas (dolicho). Recently Dr Ten Kate[3] found 119 Araucanian skulls of the La Plata Museum (near Buenos Ayres) to be distinctly brachy, while the neighbouring Fuegians are classed by de Quatrefages as dolicho.

[1] *L'Anthropologie*, September—October, 1890, p. 542.

[2] Dr Barnard Davis, *Thesaurus Craniorum;* Rink; Boas.

[3] Quoted by Dr Brinton, *Science*, new series, Feb. 1, 1895, p. 128.

Excluding deformations, Topinard[1] gives for North America a mean of 79·25 and for South America 79·16, both mesaticephalous, and consequently implying mixture everywhere. Subjoined is a table of results for some of the chief peoples of both continents:—

Dolichocephalous.	*Mesaticephalous.*	*Brachycephalous.*
Calaveras (fossil)	Aleutians	Pampas (fossil)
Eskimo	Algonquians	Pueblos
Hurons	Siouans	Cliff-Dwellers
Iroquois	Cheyennes	Creeks
Tuscaroras	Dakotans	Choktaws
Cherokis	Pawnees	Omahas
Othomis	Chichimecs	Paducas
Sumadouro (fossil)	Mexicans	Mixtecs
Caribs	Peruvians	Zapotecs
Muiscas		Mayas
Guaranis		Guatemalans
Tupis		Chimus
Botocudos		Charruas
Coroados		Araucanians
Tehuelches		
Fuegians		

Contrasts between the present Mongol and American physical types.

Other marked physical characters, showing divergence from the present Mongol type, are: 1. The well-developed superciliary ridge and retreating forehead; 2. Large high-bridged nose, often aquiline or showing in profile the typical *busqué* form, that is, two lines meeting on the bridge at an obtuse angle, and generally leptorrhine; a very general feature showing in all respects the greatest possible difference from the Mongol with a close approximation to the Caucasic type; 3. Small sunken eye, round and generally horizontal, and without the Mongol fold except in the aberrant Eskimo group, although here and there "the eyelids exhibit all the varieties observed in Asia, being sometimes contracted and oblique[2]." 4. Stature distinctly above the average,

[1] *Anthropology*, p. 240.

[2] Topinard, *Anthropology*, p. 479. Yet MM. Deniker and Laloy failed to

with a mean of about 5 ft. 8 in. or 5 ft. 9 in., rising to 6 ft. in the Patagonians, and falling to 5 ft. in the Fuegians and some Eskimo at the two extremities of the continent. All the Redskins are tall, and a large number (517, mostly Iroquois) measured by Dr Gould gave a range of from 5 ft. 3 in. to 6 ft. 3 in., with a mean of about 5 ft. 9 in.[1]

In their general physique, even more perhaps than in these details, the average American Indians present the sharpest contrast to the Asiatic Mongol. The physical appearance of Attila's Finno-Tatar hordes (Huns and others) caused the deepest aversion in Procopius and other western writers, whose vivid descriptions were remembered when the descendants of the same fierce nomads again burst into Europe some centuries later. But the American Redskin often rises to an ideal standard of manly beauty, not merely in the glowing pages of Fenimore Cooper, but in such personalities as the Apache chief, Geronimo, described by General Sherman as "more than six feet in height, straight as an arrow, superb in his physique, with long black hair hanging profusely about his shoulders and adorned with eagle's feathers—a splendid specimen of his fast-vanishing race[2]." Such a picture was never yet inspired by the presence of any full-blood Kalmuk chief or Mongol khan[3].

detect these traits in the group examined by them: "Dans aucun cas nous n'avons observé d'yeux à forme mongoloïde" (*loc. cit.* p. 543). This Mongol eye, however, has been noticed in the women and children of the Omahas (de Quatrefages, II. p. 551).

[1] *Investigation in the military and anthropological statistics of American soldiers*, 1869, *passim*.

[2] With this may be compared Yvon of Narbonne's vivid though no doubt overdrawn description of the Tatar hordes contained in a letter to Giraldus, Archbishop of Bordeaux (1243), and preserved in Matthew Paris: Habent autem pectora dura et robusta, facies macras et pallidas, scapulas rigidas et erectas, nasos distortos et breves, menta prominentia et acuta, superiorem mandibulam humilem et profundam, dentes longos et raros, palpebras à crinibus usque ad nasum protensas, oculos inconstantes et nigros, aspectus obliquos et torvos, extremitates ossosas et nervosas, crura quoque grossa, sed tibias breviores, &c. (Chron. IV. R. Luard's ed. 1877).

[3] Struck by these contrasts some anthropologists have gone so far as to deny any physical connection at all between the Mongol and the American divisions. Dr Brinton amongst others claims to have disproved what he calls

Despite this physical superiority, the American aborigines are generally held to be intellectually inferior to their remote Mongol kindred, but greatly superior to *Homo Æthiopicus*. The latter assumption needs no proof, being established beyond all question by the most cursory glance at the social evolution of the Black and Red races since the Stone Ages. Some groups both in Africa and America—Negritos, Bushmen, Botocudos, Yahgans—still stand at the lowest level. But while the New World has been strewn with prehistoric remains from the northern prairies to the southern pampas, the Negro domain has nothing to show more permanent than the wooden "Assembly Halls" of Mangbattuland. At the time of the discovery the American Indians presented every grade of social progress from the utter savagery of the Brazilian forest populations, and the partly agricultural state of the hunting tribes of the northern steppes[1], to the more or less civilised Pueblo Indians and inhabitants of the Anahuac, Yucatan, Colombian and Andean plateaux, merged together in great nationalities, and dwelling in flourishing cities, whose wealth and splendour excited the astonishment while stimulating the greed and rapacity of the conquistadores. When it is remembered that some of these cultures were the outcome of slow and independent growth on bleak or arid tablelands, developed without the aid of iron or of any more useful domestic animal than the feeble Peruvian llama, it may be doubted whether the verdict which places the more favoured Mongoloid Asiatics above the American aborigines is

Mental capacity of the American Aborigines

superior to the Negro;

"the alleged Mongoloid resemblances of the American race," and is severe on Dr Ten Kate for still upholding "the Mongoloid Theory" (*On various supposed relations between the American and Asian Races*, 1893, p. 145 and elsewhere). But the resemblances are patent, perhaps even more so in the southern than in the northern Continent.

[1] Speaking of the northern Continent, Mr J. W. Powell says: "The practice of agriculture was chiefly limited to the region south of the St Lawrence and east of the Mississippi. In this region it was far more general and its results were far more important than is commonly supposed...though unquestionably the degree of reliance placed upon it as a means of support differed much with different tribes and localities" (*Indian Linguistic Families*, &c., 1891, p. 41).

entirely justified. It may be allowed that there is nothing in Mexico, Yucatan, or Peru comparable to the stupendous temples of Boro-Bodor and Angkor-Vat in Malaysia and Indo-China; but these structures were planned by Hindu, that is, Caucasic, missionaries, and cannot be credited to the genius of the surrounding Mongoloid peoples. In respect of letters and literature, however, the superiority of the Mongol intellect cannot be questioned. Neither the Aztec nor the Maya pictorial or ideographic writings, nor the Peruvian quipos, nor yet such incoherent compositions as those of the Quiché *Popolvuh*, written after the Conquest, are in any way comparable to the libraries of moral, religious, historical and even poetic works produced in China, Japan, Tibet and other Mongol lands during the last 1500 or 2000 years.

inferior to the Mongol.

Measured by this test the mental capacity of the American aborigines is as inferior to that of the yellow race as is their cranial capacity, as determined by Morton—Mongol average 1421 c.c., American average 1234 c.c. But, as already shown (p. 43), measurements of cranial capacity yield strangely contradictory results, and this is specially the case as regards those of native American subjects. Thus the average here quoted is the same as that given for the Oceanic Negroes (Papuans), whereas that of the African Negroes rises to 1364 c.c., which is higher even than the Mexican (1339 c.c.), and very much higher than the Peruvian, which is the same as the Papuan (1234 c.c.)[1]. Yet no one would pretend to place the Congo natives intellectually on a level with, much less above, the civilised nation whose empire under the Incas extended from Ecuador to Chili, and from the Pacific coast across Bolivia inland to Argentina.

But cranial capacity inferior both to Mongol and Negro.

Such profound physical and mental contrasts as are here indicated between the American and the Mongol divisions can be explained only by divergence of the American branch from the remotest times, and its subsequent independent evolution in a practically isolated environment. Thus is established the second part of our formula on physical and mental grounds. The same

[1] Topinard, *Anthropology*, p. 231.

inference is arrived at by a closer study of the mental characters themselves, and especially the temperament and speech, of Homo Americanus, both of which present a surprising degree of uniformity, and a no less surprising difference from the corresponding characters of Homo Mongolicus.

Striking uniformity of the mental characters.

All observers are unanimous in attributing to the American aborigines a mental disposition marked by slowness of excitability, and power of passive resistance, combined with an impassive exterior, a capability of endurance and self-control, and a general wariness carried to a higher pitch than in any other division of the human family. This picture is completed by an air of sadness or gloom, observed especially in the more cultured groups—the Aztecs, Quechuas, Aymaras, etc.—and obviously attributable to the consciousness of a lost past and hopeless future. The heroes of romance are grave, solemn, cautious, reserved, observant beneath an outward show of indifference, steeled by long inheritance and discipline to inflict, or, if vanquished, to endure, the most terrible of fates, death by slow and excruciating torture.

In North America.

The phlegmatic temper of the Greenland Eskimo was already noticed in the last century by Pastor Egede, who tells us that "they seldom give way to passion, or are much affected by anything," but "come and go, meet and pass one another, without interchanging any signs of recognition[1]." "A grave demeanour, slow action, and pulse less rapid than the inhabitants of the Old World[2]," are the distinctive attributes assigned by M. Reclus to the aborigines generally, while wariness is declared to be "the dominant quality of the Indian hunter. He searches space with a scrutinising glance, notices the trace of footsteps on the ground, studies the crumpled leaf and twisted branch, lends his ear to distant sounds, ceaselessly questions surrounding nature, and in it reads the brewing storm. His mind is ever on the watch, his imagination ever rich in stratagem, his patience still unflagging. He can glide stealthily through the foliage, drift with the floating log, creep round to

[1] *Description of Greenland*, p. 122.

[2] *Universal Geography*, English ed. xv. p. 48.

leeward of the game, catch the scent and, undetected, crawl through the grass to take him unawares. With the enemy, or even with the stranger, who may still be a foe, as the pale-face is for the most part, he is still the crafty hunter. He keeps on his guard, and hides his feelings under an impassive countenance; seeming neither to hear nor to understand, he sees all and remembers what may be needed to ward off or anticipate attack. Should he fall into the hands of a stronger or more cunning adversary, his mind is already made up. He feels that it is due to himself, due to his tribe, still to maintain his haughty bearing, still to defy his captors. The early writers tell us how, chained to the stake, he urged the women and children to tear his flesh, to sever his limbs, to burn him at a slow fire, and how, feeling the approach of death, he intoned his war-song, so that his last breath might still be a death-rattle of scorn and pride[1]." Such scenes, unparalleled elsewhere, are no fancy pictures; they have been actually witnessed by white men even in the present century[2]. Equal endurance is displayed by young and old under their fearful ordeals and self-inflicted tortures, such as those of which George Catlin was a spectator during his residence amongst the now extinct Mandans of the Missouri valley[3]. The scenes described by that observer are of such a harrowing nature as almost to pass the bounds of credibility, and indeed some of the trials of endurance have been questioned or declared impossible on physiological grounds alone. Nevertheless Catlin's veracity, impugned by Schoolcraft and others, has been confirmed by independent evidence. A few of the details must certainly be rejected as absolutely incredible; but these are given on the hearsay report of "several traders" (p. 368).

[1] *Op. cit.* XVII. p. 30.

[2] See J. P. Dunn, Junr., *Massacre of the Mountains*, &c., 1886, p. 513.

[3] *North American Indians*, I. p. 170 *et seq.* Catlin's account of the appalling cruelties witnessed by him at the Mandan annual ceremonies is reprinted with the original illustrations in the Smithsonian Report for 1885, Part II. p. 356 *et seq.* Here is also published a summary of the controversy to which his statements gave rise, together with confirmatory evidence and remarks by the editor, who accepts "the correctness of his descriptions," and declares him to have been "an honest observer and truthful chronicler" (p. 374).

Similar mental traits characterise the Central and South American Indians, such as the Caribs, who "have a gravity of manner and a certain look of sadness which is observable among most of the primitive inhabitants of the New World[1]." In South America.

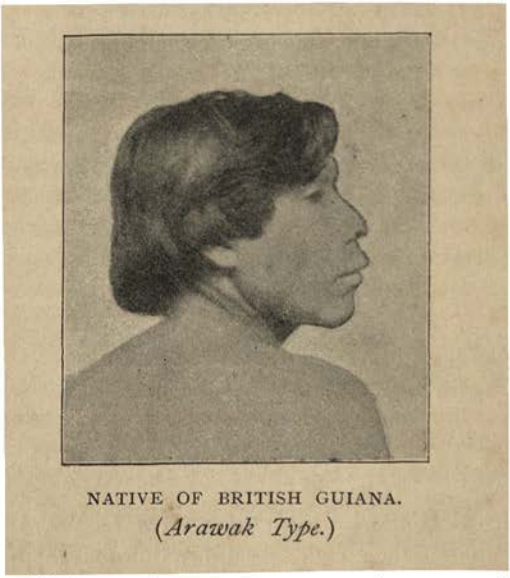
On the banks of the Paraguay Mr E. F. Knight witnessed a

NATIVE OF BRITISH GUIANA.
(*True Carib Type.*)

scene which reads like an extract from *The Last of the Mohicans*: "We saw four Indians come stealthily down to the bank, armed with long lances. Then, lying down among the reeds, they gazed silently into the water till they saw some big fish pass by, when, with wonderful skill, they speared them one after the other, and threw them on the bank. Next, they lit a fire, roasted the fish they had caught, and devoured them. This done, they picked up their weapons, and crept back into the woods as noiselessly and stealthily as they had come. The whole time—some three hours—that they were on the river-bank, not one of these men spoke a word[2]."

[1] A. von Humboldt, *Personal Narrative*, III. p. 74.
[2] *Cruise of the Falcon*, 1884, Vol. II. p. 27.

In the "strange and painful whip dance" described by Mr Everard im Thurn the Arawaks "lash each other until their calves are striped with weals and the blood flows freely[1]." The same observer tells us that the Guiana Indians before shooting rapids and on other occasions propitiate the local spirits by rubbing red pepper in their eyes, and that the older people "inflict this self-torture with the utmost stoicism." The extreme pain of the operation, "which is never omitted," is shown by the fact



NATIVE OF BRITISH GUIANA.
(*Arawak Type.*)

that in the children and even young men it causes sobbing, an otherwise rare sight amongst the impassive and unemotional natives[2]. But the power of endurance, and of uncomplaining submission to the direst calamities, shown by the Guarani Indians of Paraguay during the war of extermination waged by Lopez against Brazil and her allies was never surpassed, scarcely ever equalled, by any other nation. "On the battle-fields the allies found little but dead bodies; nor all of these, for many, fighting lassoed round the waist by cords attached to the saddle-bow, were

[1] *Among the Indians of Guiana*, 1883, p. 326.
[2] *ib.* pp. 368–69.

borne dead or dying from the field by their mounts. Prisoners tore the bandages from their wounds....The manhood of the nation almost entirely disappeared by war, famine and cholera. None survived except the infirm, the women and children[1]." In a word, watchful, reserved, impassive, enduring, gloomy, sullen, are the epithets most frequently applied by travellers to the natives of South, as well as of North, America, and few will dissent from the contrast drawn by Darwin "between the taciturn, even morose aborigines of South America and the light-hearted talkative negroes[2]."

Uniform character of American speech in its general morphology.

Almost equal uniformity pervades the general morphology of American speech, although recent research tends to show that what Dean Byrne calls its "megasynthetic or massive character[3]" is not by any means so universal as is commonly supposed. Nevertheless this character, the nature of which has already been explained (Chap. IX.), is conspicuous in Eskimo,

[1] Reclus, Vol. XIX. English ed. p. 295.

[2] *Descent of Man*, I. p. 216.

[3] *General Principles of the Structure of Language*, 1885, I. p. 136. In this learned work an attempt is made to establish a correlation between the mental qualities of all races and the peculiar character of their respective languages. The theory is supported by a vast amount of research and acute reasoning, and the author's conclusions may perhaps be said to agree better with the relations prevailing in the New World than in the eastern hemisphere. The general principle is laid down that "slowness and persistence of mental action must tend to impede the movements of thought which are involved in language, and to make its acts larger so as to embrace a wider object" (I. p. 22); and it is claimed that the theory is proved for America by the massive character of its speech, corresponding to the slow mental action of the aborigines. Despite its inductive treatment, the subject belongs, and must long belong, to the region of metaphysical linguistics. Its general conclusions seem to be vitiated, amongst other considerations, by the phenomenon of speech shifting from one race to another (p. 202) without such a corresponding mental transformation as would be necessitated by the hypothesis. The English-speaking Irish Kelts have not acquired a Teutonic habit of thought, nor has the English language spoken by them made any appreciable approximation to the general structure of Keltic speech. It would, on the other hand, be difficult to show that the English people have diverged in their mental qualities from their Kelto-Teutonic forefathers as far, and in the same direction as, their present speech has diverged from its Anglo-

Algonquian, Iroquoian, Aztec, Mixtec, Quechuan (Peruvian), Araucanian, and many of the chief stock languages in every part of the New World, while it is not found in any of those of the eastern hemisphere. A primordial unity may thus be claimed for American speech, which, during the course of its independent evolution, shows no clear evidence of having anywhere been brought under Asiatic or other foreign influences. It would be idle here to discuss the wild statements formerly and even still made by erudite etymologists regarding, not merely resemblances and affinities, but actual identities between Basque, Irish, Japanese, Chinese, Berber, and other tongues of "High Asia," or of "High Africa" on the one hand, and Iroquois, Delaware, Othomi, Maya, Peruvian and others of "High America" on the other[1]. All such statements are worthless, being based either on the vague and unconfirmed reports of "shipwrecked mariners," or on gross ignorance of the languages brought into unnatural connection, or else on pseudo-scientific processes of comparison incapable of

Saxon prototype. And then we should have to consider the question of miscegenation, to which, as seen on p. 199, race but not language is susceptible.

[1] One or two instances will suffice to show the reckless nature of some of the statements here referred to. In a work on Keltic local names, a fruitful source of the wildest etymologies, Herr Obermüller finds Keltic roots referring to water in Siberia, India and Peru; and Prof. John Campbell of Montreal has discovered that Creek, Aztec, Choctaw and other American tongues are merely so many Japanese dialects. The Abbé Petitot is convinced that Athapascan is a disguised Semitic idiom, while Señor Naxera identifies his Othomi (Mexican) mother-tongue with Chinese. Another Mexican, Señor José A. Vargas, tells us that the Maxteca language, current on the uplands between Puebla and Oaxaca, is identical with that of some gypsies who have recently wandered to those parts from the Balkan Peninsula. Hence the Maxtecas must be the descendants of other gypsies who came from the same region ages ago; for "how can we explain otherwise the fact that the same language is spoken in Dalmatia and in these mountains of Mexico" (*Monitor Republicano*, Mexico, April 16, 1895). "When I see volumes of this character," writes Dr Brinton, "many involving prolonged and arduous research...I am affected by a sense of deep commiseration for able men who expend their efforts in pursuits of such will-o'-the-wisps of science, panting along roads which lead nowhere, inattentive to the guideposts which alone can direct them to solid ground" (*On various supposed relations between American and Asian Races*, p. 151).

yielding trustworthy results of any kind. Under critical enquiry the linguistic identities between the Old and the New World are reduced to the Eskimo dialects current on both sides of Bering Strait, where Innuit settlements have long been established.

Surprising number of American stock languages despite their common polysynthetic type.

Although mainly cast in a common polysynthetic mould, the American tongues have, during their separate existence, diverged so widely from the original type that more irreducible stock languages have been developed in this region than in any other part of the world. As many as fifty-eight have been determined for British North America and the United States alone, and according to some authorities radically distinct languages are relatively more numerous in the rest of the continent than in the northern regions. Perhaps 150 is not too high an estimate for the whole of America, although the researches of Buschmann and of some more recent philologists have tended to reduce the number of independent linguistic families both in Mexico and the United States. Thus the Aztec and the Shoshone (Snake) groups would appear to be fundamentally connected, but yet so divergent that for the present they must still be treated as two independent forms of speech. On the other hand, radically distinct languages seem to be less numerous in South America than might be inferred from the statements of early writers. On the evidence of their speech Mr Clements R. Markham is inclined to derive the Amazonian tribes, "now like the sands on the seashore for number, from two, or at most three parent stocks," adding that "the differences in the roots between the numerous Amazonian languages are not so great as was generally supposed[1]." Dr Brinton also now abandons the opinion formerly held by him, in common with so many other philologists, "that the linguistic stocks of South America are more numerous than those of North America[2]."

Another point of considerable importance is the extremely irregular distribution of these stock languages, some of which, such

[1] *A List of the Tribes in the Valley of the Amazon*, in *Jour. Anthrop. Institute*, Feb. 1895, p. 236.

[2] *The present Status of American Linguistics*, in *Memoirs of the Chicago Congress of Anthropology*, 1893, p. 336.

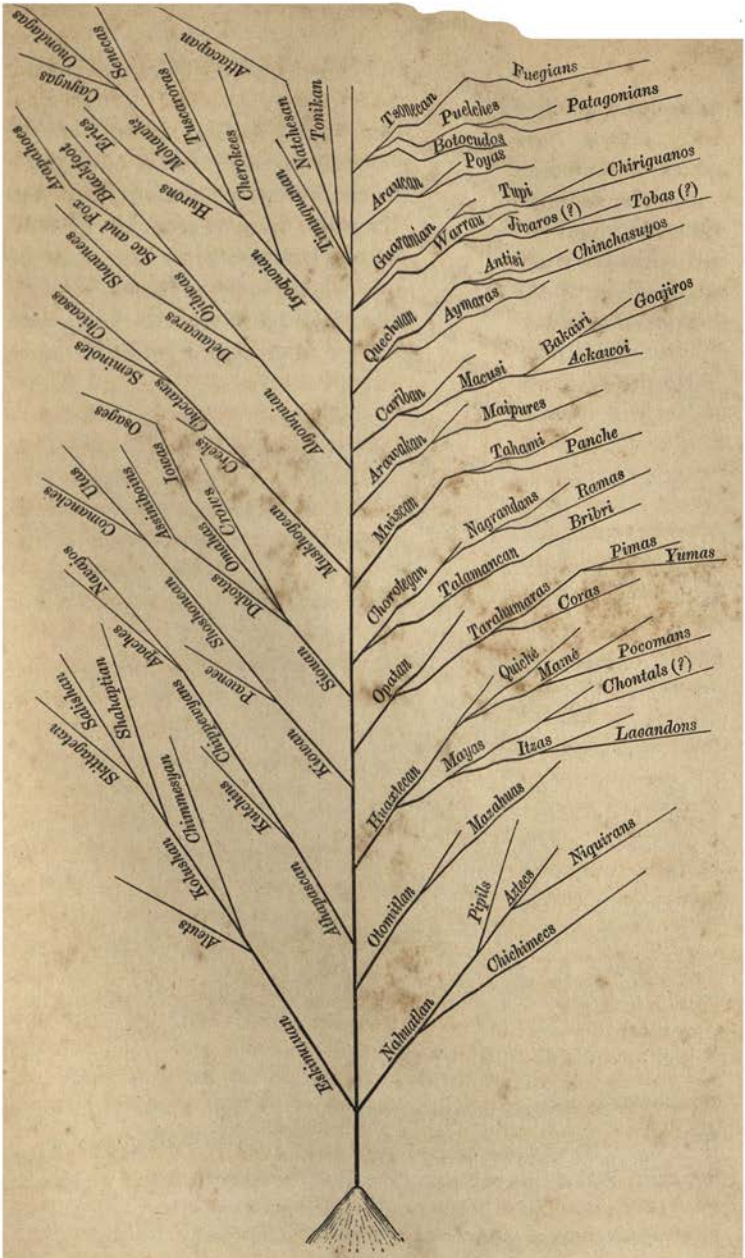
as the Athapascan, the Algonquian, the Siouan and the Shoshonean in the north, the Nahuatlan and Huaxtecan (Maya-Quiché) in the centre, the Guarani and Quechua-Aymara in the south, occupy vast areas comparable to those of the Aryan, Ural-Altaic and Bantu in the Old World. But the great majority are crowded together, like those of the Caucasus and Sudan, in extremely narrow limits, as on the north-west coast, where about thirty are confined to the strip of seaboard which extends from British Columbia to Lower California between the coast ranges and the Pacific.

The classification of the Aborigines mainly based on language.

The inevitable result is that classifications have more of a linguistic than an ethnical basis; for how can the most experienced anthropologist pretend to distinguish on physical grounds between a few thousand Oregon Indians, for instance, who speak a score or so of fundamentally distinct idioms, but who all closely resemble each other in outward appearance? As elsewhere remarked (Ch. IX.) linguistic are always more easily determined than racial divisions, and this is specially the case in the American field, as frankly recognised by Mr J. W. Powell, who gives to his valuable summary, representing over twenty years' intermittent labours, the title of "Indian Linguistic Families of America north of Mexico[1]." For the same reason the accompanying FAMILY TREE OF HOMO AMERICANUS is necessarily based far more on linguistic than on ethnical differences. Here Mr Powell's orthography is adhered to, uniformity in this respect being more important than theoretical accuracy. His convenient plan of indicating stock languages by the final syllable

Family Tree of Homo Americanus.

[1] *Seventh Annual Report of the Bureau of Ethnology*, Washington, 1891. Mr E. im Thurn goes even further, and attempts to define ethnical divisions in terms of language (*op. cit.* p. 161). He declares that for Guiana, where "there are no very great differences other than those of language," this factor "must be adopted" as the basis of classification (*ib.*); and at p. 167; "It is not very easy to describe the distinguishing physical characteristics of these groups [of Guiana natives], for, after all, all being of the same race, the differences are but small." Here, it is important to note, the term "race" has a very wide meaning, being made commensurate with *Homo Americanus*. It may be added that d'Orbigny's attempt to group the South American aborigines according to their physical characters yielded unsatisfactory and even contradictory results (*L'Homme Américain, passim*).



FAMILY TREE OF HOMO AMERICANUS.

an or *ian* is also adopted, and extended to the whole of America. Thus *Siouan*, *Nahuatlan*, *Cariban*, *Guaranian* are the collective names of families, of which *Dakota*, *Aztec*, *Macusi* and *Tupi* are respective sub-groups or branches, confusion being avoided by using the plural form where *an* constitutes an integral part of the tribal name, as in *Mandans*, *Pocomans*, *Dirians* &c. Mr Powell's classification is also accepted for North America in all cases except the *Yuman* and *Piman* groups, which appear as independent families on his map, but which are here transferred to the *Opatan* of North Mexico on the authority of Manuel Orozco y Berra, first of Mexican systematists[1].

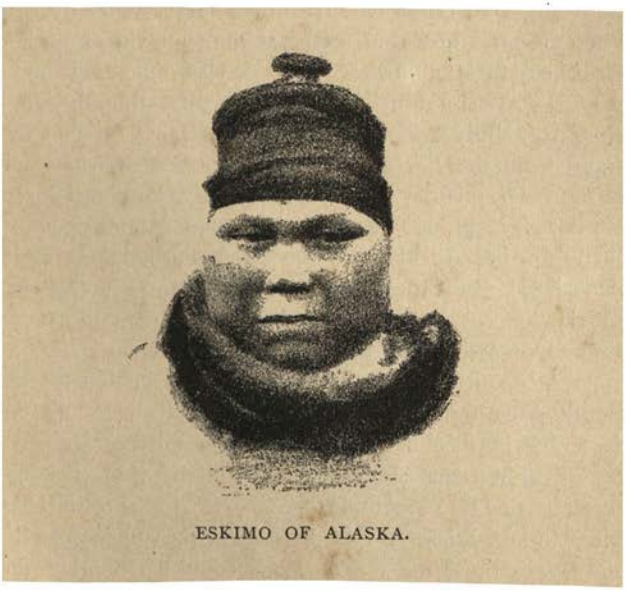
America probably peopled from Europe by palæolithic, from Asia by neolithic man.

Assuming a common descent of these multitudinous tribes and peoples from more or less generalised Mongol precursors in pleistocene and later times, the question arises, by what route or routes did they reach the American Continent? It was shown in Chap. X. that the road by Bering Strait, if not also by the Aleutian chain, was always open, and that in late tertiary times an alternative highway was probably available from West Europe to Greenland and Labrador. It seems likely that both of these routes were followed, the western first by primitive long-headed tribes, the eastern later by round-headed Mongoloid peoples from Asia. That both arrived during the stone ages is evident from the presence side by side of the fossil remains of the two types in South Brazil and Argentina (p. 98). From the undoubted remains of palæolithic man discovered in the same southern regions it would also appear that the long-headed preceded the short-headed race, for no clear traces of a round-headed palæolithic people has yet been anywhere brought to light. Thus may be explained the presence at the two extremities of the New World of highly dolichocephalous peoples, Botocudos, Tehuelche Patagonians and Fuegian Yahgans in the south, Eskimo in the north from Greenland and Labrador round by the shores of the Frozen Ocean to Alaska. These first arrivals, being more primitive and armed with ruder weapons,

Present distribution of the two types.

[1] *Geografia de las Lenguas y carta etnografica de Mexico*, 1864.

would, unless absorbed, naturally be driven by the later neolithic intruders to the less favoured Arctic and Antarctic regions, where their descendants are still found in undisputed possession of their uninviting homes. It is noteworthy that "the Eskimo type is found in its highest expression in Greenland. Dolichocephaly and extreme height of the skull [hypsistenocephaly] become less as we approach Bering Strait. The Aleutians and Kolushes [Thlinkits] would form the passage between it and the Samoyede



ESKIMO OF ALASKA.

and Mongolian type[1]." This is precisely what we should expect on the assumption of long-headed tribes arriving first from Europe and moving westwards till arrested by round-headed arrivals from Asia. Doubtless another interpretation is given to this fact by Dr Rink and others, who trace the Eskimo migrations, not from east to west, but the other way, from Alaska to Labrador and Greenland. But all these views are based on what may be called local, and consequently restricted considerations, which take no account of the broader

The Eskimo question.

[1] Topinard, *Anthropology*, p. 473.

and more fundamental factors of the problem[1]. It is not merely in the Eskimo domain, but throughout the whole continent that, despite the already described secular interminglings, dolichocephaly decreases westwards. According to Morton it is in the north more prevalent "among the tribes that originally inhabited the east of the Alleghanies, and brachycephaly among those to the west of the Mississippi. The same thing occurs on the coasts of South America[2]."

The question is affected or rather obscured by the supposed Eskimo affinities observed amongst the Chukchi and other tribes in North-east Asia, affinities which are elsewhere explained (Chap. XII.). The position here taken is greatly strengthened by the comparative study made in Paris of the crania brought by Señor Moreno from the Patagonian paraderos, crania which might at first sight be taken for "the skulls of Eskimo....The cephalic index is 72·02, that is to say, they are the most decidedly dolichocephalic in the world after those of the Eskimo [and some Melanesians], and their prognathism is 69·4, or less than the [normal] American, and as much or more than the Eskimo.... This unexpected approximation to the Eskimo suggests some curious questions for consideration. Are the Tehuelches the autochthonous dolichocephalic element, which by its crossing with a race of Asia has given origin to the present American type? May not the craniological singularity of the Eskimo, who in certain respects resemble the Samoyedes and the Mongols proper, and in others are as distinct as it is possible to be, be explained in the same way? They would be another form of cross of the same Asiatic brachycephalic element with the same autochthonous American dolichocephalic element[3]."

Its solution.

Such an explanation for a polygenist is natural. But by substituting *quaternary* for "autochthonous," which for the monogenist has no meaning, M. Topinard's sug-

[1] *Chirágh-ké-niché and'hérá*, "Under the lamp is darkness," says the Hindí proverb. In order to get light on these obscure ethnical problems the observer must stand aside, and study them from a distance.

[2] Topinard, *ib.* p. 480.

[3] Topinard, *ib.* p. 484; F. P. Moreno, Junr., *Des Cimetières et Paraderos de Patagonie*, in *Rev. d'Anthrop.* III. 1874.

gestion will harmonise completely with the solution here proposed. The peopling of the New World is thus seen to be intimately associated with the seemingly anomalous position of the Eskimo and prehistoric Patagonian types, which have hitherto refused to adapt themselves to any intelligible scheme, but which now appear to fall naturally into their place, to be, in fact, as they are, essential elements in the equation.

Prof. Mason's theory of the peopling of America from Indo-Malaysia.

One of the most striking, and perhaps the most original, of the many alternative theories is that advanced by Prof. O. T. Mason[1], who rightly argues that water yields the easiest means of obtaining food and of transport, as well as the materials of all the earlier arts and industries. Hence coastlands, and especially estuaries teeming with animal life, first attracted human settlers; and on this ground Morgan[2] made the Columbia estuary the chief centre of tribal dispersion over the North American continent. Following up this line of argument, Prof. Mason reasons with much ingenuity that the Columbia river, or some neighbouring point, may have been reached at a very remote period from Indo-Malaysia by primitive seafarers in rude open boats skirting the East Asiatic and North-west American seabords, and that such voyages may have been constantly made thousands of years ago, until the route was interfered with by Chinese and other civilised settlers spreading from the interior of Asia seawards. Such a route "might have been nearly all the way by sea. It could have been a continuously used route for centuries. Until interrupted by later civilisations, it might have been travelled over for thousands of years. It lies absolutely along a great circle of the earth, the shortest and easiest highway upon a globe" (p. 279). Reference is made to the analogous case of the British Columbian Haida Indians, who for ages have annually voyaged in their frail craft five hundred miles southwards to Puget Sound in quest of clams and oysters for their own consumption and for trade. Weight is also placed on assumed

[1] *Migration and the Food Quest, A Study in the Peopling of America*, reprinted from *The American Anthropologist* for July 1894; Washington, 1894.

[2] *North American Review*, Oct. 1869, Jan. 1870.

ethnical and possible linguistic affinities along the line of primeval traffic; on the favourable marine and aërial currents; on similar social institutions, arts and industries of too striking a nature to be explained otherwise than by actual contact. It is asserted that scarcely an original idea, not even the game of *patolli*[1], "was developed upon the western hemisphere" (p. 290); that "this close connection between the two continents has existed for thousands of years," and that "there never was known to history a day when the two continents were not intimately associated" (p. 292).

Negative objections to this theory.

The case could hardly be put in stronger language, and, if it could be upheld, many pages of this work would have to be re-written. But it may be asked, if history has thus always been in touch with the New World, why did the New World need to be discovered by Columbus, or his Norse precursors? And if this close connection existed "for thousands of years," how did it happen that there was no interchange of the useful commodities of social life between the two hemispheres? These should have preceded, or at least accompanied, the æsthetic fancies assumed to have been wafted over the seas from Malaysia or Papuasia to the north-west coast of America. But while this region received none of the good things of the East, neither its silks, iron, cereals such as wheat, rice, and millet; pulse such as pease and lentils; nor its beasts of burden such as the horse, ass, and camel, on the other hand none of the fruits of the West, maize, tobacco, potatoes, tomatoes, and the like, found their way to the East, so that after thousands of years this international traffic produced nothing but negative results, hence might as well never have existed. But interchange is the very essence of commercial intercourse; therefore the assumption falls to the ground, the more so that history knows nothing of this

[1] As much has been made of the undoubted resemblance between this Mexican game, and the *pachesi*, a kind of backgammon long known in India, it should be stated that, after a careful study of the subject, Mr Culin and Mr Frank Cushing declare *patolli* to be "thoroughly American in origin." (See Dr Brinton, *On various supposed Relations between the American and Asian Races*, p. 149.) The question was first raised by Dr E. B. Tylor (*Jour. Anthrop. Inst.* VIII., 1878).

close connection between the two hemispheres. The only intercourse known to (recent) history is that which has long been carried on between the Eskimo and other tribes on both sides of Bering Strait, an intercourse which has led to some ethnological mystifications, but which leaves the question of early intercontinental migrations untouched.

Positive objections.

Nor could such migrations be explained by Prof. Mason's theory, even were the main facts admitted. It would not account for the presence of two types of primitive man in the southern extremity of the New World in quaternary times, that is, ages before the development of navigation or of any other advanced art in Malaysia or Indonesia. Primitive man did not reach America from those regions by water, but from Asia and Europe by the overland routes, as explained. But it is not a question of primitive man, but of "East Indians," and "Malays" (p. 281), and of "pre-Malays, who were the Phœnicians of the Orient" (p. 255), that is to say, cultured peoples, who had long outlived the stone ages. If therefore these were the first settlers in the New World, what becomes of the American palæolithic man? And if he be "discredited," there is still the American neolithic man, accepted by all, but unaccounted for by this theory. Did these "Phœnicians of the Orient" revert in America to the savage state, settle down on the shores of New England, Brazil, and Fuegia and build up the enormous kitchen-middens of those regions? Did they fabricate the multitudes of rude stone implements which have been collected in tens of thousands from all parts of the United States (p. 105), and which cannot be distinguished in form from the European palæoliths? Did they build the mounds of the Ohio valley, the casas grandes of the Pueblos, the Mexican teocalli, the great cities of Yucatan and Peru, the megalithic monuments of Lake Titicaca? Did they forget their Malayo-Polynesian and other eastern tongues, and invent new forms of speech in the New World, forms utterly unlike any current in the Old? Surely all these things should be taken into account in any rational theory that may be advanced to explain the origin of the American aborigines, and their orderly evolution up to the various planes of culture reached by them in pre-Columbian times.

Coincidences between certain usages and mental aspects of the inhabitants of the Old and New Worlds explained.

Thanks to their generally homogeneous character, and to their independent normal development since the stone ages in an environment separated from the rest of the globe, the American aborigines present few other racial problems of sufficient importance to require discussion in these pages. Once severed from the fictitious Asiatic connection and influences, the study of their social, religious, and political institutions acquires quite an exceptional interest. Striking resemblances and points of apparent contact with the usages of the eastern populations at corresponding grades of culture are no longer to be explained by the clumsy device of importations, impossible borrowings or affinities, but by the immeasurably more rational conception of their common mental constitution. Such coincidences thus become doubly instructive. They not only illustrate the social condition of the peoples themselves, but also throw a flood of light on the primeval psychic character of all mankind, as clearly appears from the all-embracing but unfortunately somewhat entangled ethnico-psychological writings of Dr Adolf Bastian. Thus, to give one instance amongst a thousand, instead of deriving Papuans from Basques, and Basques from Guiana Indians, because of the *couvade* common to all, it will be more profitable to study the motives and mental processes which underlie that strange custom, and which may explain its independent origin amongst such widely separated and fundamentally distinct peoples. By adopting this course, Mr James Rodway seems to have arrived at a rational solution of the mystery. On the birth of the child, the father "calmly prepares to do what he considers his duty. He must not hunt, shoot, or fell trees for some time, because there is an invisible connection between himself and the babe, whose spirit accompanies him in all his wanderings, and might be shot, chopped, or otherwise injured unwittingly. He therefore retires to his hammock, sometimes holding the little one, and receives the congratulations of his friends, as well as the advice of the elder members of the community. If he has occasion to travel, he must not go very far, as the child spirit might get tired, and in passing a creek must first lay across it a little bridge, or bend a leaf in the shape of a canoe for his companion. His

wife looks after the cassava bread and pepper-pot, and assists the others in reminding her husband of his duties. No matter that they have to go without meat for a few days, the child's spirit must be preserved from harm[1]." So with the Egyptian and American pyramids, on which so many wild theories have been based, but all of which are independent local developments originating in the same psychic feeling, awe and fear of the dead. They must be honoured with parting gifts; their remains and belongings, deposited in cists, must be guarded against profanation by superimposed mounds (p. 128); their wrath must be appeased by periodical offerings and by sacrifices on their graves. Hence the mounds may in some places assume a truncated form for the convenient celebration of these rites, and for the erection of permanent buildings for the same purpose. Thus arose the "temple-mounds" of the Mississippi basin described by Mr Lucien Carr[2], and the Mexican and Maya teocalli, all of which, like the Egyptian pyramids, contain human remains, but none of which can date farther back than about the sixth century of the new era, that is to say, ages after pyramids had ceased to be built by the Egyptians, to whom, nevertheless, these American structures have been attributed by those who refuse to credit the natives of the New World with a single original idea.

It would be surely more reasonable to attribute the "temple-mounds" to the vanished race, by whom somewhat analogous monuments were raised in Tahiti, the Low Archipelago and other South Sea islands. "In the Society Islands, as in many other parts of the Pacific, are to be found a number of buildings which testify to the existence in former times of a people of a higher development. They are generally in the form of terraces or platforms, placed in elevated spots, and formed of hewn blocks of stone which are often of great size. In the centre is placed a sort of massive altar. A very large building of this kind exists at Papawa in Tahiti. From a base measuring 270 feet by 94 feet rise ten steps or terraces, each about 6 feet in height. The object of these *morais*, as they are termed,

[1] *In the Guiana Forest*, 1895, pp. 25, 26.

[2] *The Mounds of the Mississippi Valley historically considered; Smithsonian Report*, 1891, pp. 95 *et seq.*

is not very clear. They were in many cases no doubt of a monumental, if not sepulchral, nature; but sacrifices were apparently offered upon them in some instances, and it seems that they also served on occasions as forts or strongholds[1]." Here the tables might well be turned on those archæologists who trace the foundations of every monumental structure in the New World to the Eastern Hemisphere; for it might be argued that, if the Egyptians built, for instance, the pyramid of Cholula, which, like that of Cheops, "may have been a tomb" (de Nadaillac, p. 351), the morai of Papawa may *à fortiori* have been erected by the Toltecs, or any other prehistoric cultured people of Central America, the resemblances between the morais and the terraced Mexican pyramids being so much greater than that between these structures and the pointed pyramids of the Nile Valley. But all such inferences are highly unscientific, and it may be confidently asserted that, if Cholula were of Egyptian workmanship, the proofs would lie on the surface as palpably as the proofs of Hindu influences lie on the surface of Boro-bodor and Angkor-Vat. It may be concluded with Mr Thomas Cyrus that, "the mind and requirements of man being substantially the same everywhere and in all ages, the primitive works of art which relate to supplying these requirements will be substantially the same where the conditions are alike" (*Mound Explorations*, 1894, p. 529).

Results of the discovery and re-settlement of America on the Aborigines.

The fate of the aborigines since the discovery of America has been compared by Dr Daniel Wilson with that of the men of the Stone Ages in Europe, when their domain was invaded by "one or more races superior alike in physical type and in the arts upon which progress depends[2]." But, owing to the different degrees of culture prevailing in America, the results have not everywhere been the same. The normal development of the leading nations—Aztecs, Mayas, Chibchas, Peruvians—who had established powerful political systems with thoroughly organised governments,

[1] Dr F. H. H. Guillemard, *Australasia*, p. 515.

[2] *American Illustrations of the Evolution of New Varieties of Man*, *Jour. Anthrop. Inst.*, 1878, p. 340.

was abruptly arrested, and replaced by the social and religious institutions of the conquerors. Millions perished during the first conflicts, and later in the mines or on the plantations. In the West Indies all the natives rapidly disappeared, and here their place was taken by negro slaves imported from Africa. But elsewhere the civilised populations survived in sufficient numbers to amalgamate with the Spanish and Portuguese intruders, and form the substratum of the present mixed peoples of Latin America (p. 152).

In Latin America.

In the northern continent totally different conditions produced totally different results. Here the normal relations of a few hundred thousand half-savage and partly agricultural hunting tribes, distributed over several million square miles of territory, were at first little affected by a few British settlements on the eastern seabord, mostly engaged in hostilities with rival French colonists in the St Lawrence basin. Spanish America was overrun and largely reduced within a single generation after the fall of Mexico, whereas the Prairie Indian was still roaming the Mississippi plains far into the nineteenth century. On the other hand no fusion of the two elements has taken place in Anglo-Saxon America at all comparable to the amalgamation of Europeans and natives in the central and southern regions. Here the union has been reciprocal, equally affecting both races, whereas in the north it has been, so to say, one-sided. It was shown (p. 152) that the North American Indians have almost everywhere received a strain of white blood; but the white populations, always excepting the French Canadians, have on the whole preserved their racial purity intact. In virtue of a deeply-rooted ethnical sentiment, the half-breeds have, as a rule, failed to acquire citizenship amongst the higher race, and are fain to cast in their lot with the aborigines who are now for the most part confined to reservations. Recently, however, a tendency towards absorption in the white population has been observed in some of the western states, but always under the indispensable condition of tribal effacement. "There is one way," writes Mr James O. Dorsey, "in which a diminution of some tribes is taking place, viz. by ceasing to be Indians and becoming members of civilized society. In Minnesota all persons of mixed blood,

In Anglo-Saxon America.

i.e. of white and Indian descent, are recognized as citizens. The same is true in other States; and the privilege is extended to those who are not mixed bloods. Also, under present homestead laws, Indians are becoming citizens by going off their reserves. Let a well-arranged severalty bill be enacted into a law, and Indians be guaranteed civil rights as other men, and they will soon cease to be Indians[1]."

But absorption, universal in Latin America, is still the exception in the United States, where the natives are consequently doomed to almost absolute extinction. At least the slight Indian strain that may survive amid the white populations may be regarded from the ethnical standpoint as *une quantité négligeable.* Even Dr Wilson, who is perhaps inclined to exaggerate the importance of the aboriginal element, admits that "the red race is actually disappearing by positive extinction," adding, however, that "it is blending by a process of absorption into the dominant race, not without leaving some enduring influence on the European-American population both of Canada and the United States" (*loc. cit.* p. 356). Although in the States this "influence" must be regarded as infinitesimal, some ethnologists have nevertheless attributed to it a certain approximation to the Indian physical type, which has been observed amongst the white populations, especially in some of the southern and central states. But this approximation, which reveals itself in the increased stature, slender and somewhat bony figure, sharp angular features, pale or less florid complexion, straight and stiff black hair[2], is certainly not due to crossings with the aborigines, for similar tendencies have already been developed amongst the British settlers in Australia. It is to be regarded rather as a case of convergence, such as that of the Germans in Trans-Caucasia (p. 203), and may be attributed to the changed climatic conditions, drier, hotter and less nebulous than those of the British Isles. But there can be no question of

The Anglo-American type due, not to miscegenation, but to convergence.

[1] *Contributions to North American Ethnology*, IX. Washington, 1893, p. 167.

[2] The long lank hair "is, in comparison with the soft silky hair of the Englishman, evidently an approach to the American Indian" (Waitz, *Anthropology*, p. 54).

degeneracy of the Anglo-American populations in their new environment. The lugubrious vaticinations of a now-forgotten school of fierce polygenists have already been belied by the magnificent physique of the Kentucky and Tennessee peoples, mainly sprung from a hale Virginian stock, with no appreciable strain of fresh blood from the mother country.

CHAPTER XIV.

HOMO CAUCASICUS.

North Africa probable cradle of the Caucasic race—which spread thence east to Asia and north to Europe—The Cro-Magnon and other early European races affiliated to the fair Berbers of Mauritania—West Europe occupied by several varieties of Homo Caucasicus in the Stone Ages—Who were of non-Aryan speech like the still surviving Basques—The Ibero-Berber problem—Basques and Picts—Family Tree of Homo Caucasicus—Xanthochroi and Melanochroi—Blacks of Caucasic Type—Physical Characters of Homo Caucasicus—White, Brown and Dark Hamites—The Tamahu Hamites of the Egyptian records—The "New Race" in the Nile Valley—The Eastern Hamites: Afars; Bejas; Gallas and Somals; Masai and Wa-Huma—Ethnical relations in Abyssinia: Himyarites; Agaos; The present Abyssinian populations—Relations of the Hamites to the Semites—The Semitic Domain—The Semitic Groups—Semitic physical and mental characters—The Semitic Languages—The Aryan-speaking Peoples—Aryan a linguistic not a racial expression—True character of the Aryan migrations—Illustrated by the Teutonic invasion of Britain; and by the Hindu invasion of India—The Aryan Cradleland—Primitive Aryan Culture—Schrader's hypothesis—Conflicting views regarding the Aryan Cradleland reconciled—The Eurasian Steppe true home of the primitive Aryan Groups—The primitive Aryan type difficult to determine—But probably xanthochroid—The Aryan problem summed up—Recent expansion of the Aryan-speaking Peoples—The "Greater Britain"—The Aryan linguistic family—Table of the Aryan linguistic groups—Disintegration of primitive Aryan speech—The Teutonic phonetic System—Ethnical and linguistic relations in the Caucasus—Main Divisions of the peoples and languages of Caucasia—Ethnical and linguistic relations of the Dravidas—Sporadic Caucasic Groups: Todas; Ainus.

North Africa probable cradle of the Caucasic race,

FOR the history of primitive man in the northern hemisphere the chief geological factor is the condition of the Mediterranean basin in miocene and later epochs. Reference has already been made to the distribution of land and water after the slow disappearance of the miocene continent, and it will suffice here to add that Prof. E. Hull has lately placed beyond reasonable doubt the existence

of barriers, by which the Mediterranean area was separated into a chain of basins in post-miocene times[1]. Continuous land, or at least land connecting North Africa, Europe and West Asia at several points during the pliocene and post-pliocene epochs, is thus established, and at once explains the constant migrations of the large African fauna north and south of the Mediterranean basin. That these migrations were accompanied by primitive human groups is sufficiently attested by the overwhelming proofs of their presence on both sides of this area during the Stone Ages. The long sojourn of palæolithic man in Mauritania, using the term in its wider sense, has been revealed by the researches of Dr Collignon and of Dr Couillault in the Gafsa district, Tunisia (p. 92), and it was also seen (pp. 134–5) that the same region was one of the earliest, and in every respect one of the most important centres of neolithic culture. Human progress, arrested or at least partly interrupted in the north by the phenomena of glaciation, subsidence, and upheaval, was exposed to none of these disturbing influences in the south, where the Sahara itself formed a well-watered and habitable region, and not, as commonly supposed, a marine bed. Here therefore pliocene man, migrating from his original seat in the Indo-African Continent (Chap. X.), found a new home where by slow adaptation to the changed and improved climatic conditions the highest human type, conventionally known as the Caucasic, may well have been evolved. The white man and the negro, says a great biologist, have been differentiated "through the long-continued action of selection and environment[2]."

From this centre of evolution and dispersion the higher groups passed by easy transitions, eastwards into the Nile valley[3] and West Asia, northwards to Iberia, and thence to West and Central Europe. But these migrations, like those of the African fauna itself,

which spread thence east to Asia and north to Europe.

[1] Paper read before the Geological Society, Feb. 6, 1895.

[2] The late Prof. Arthur Milnes Marshall, *Biological Lectures*, 1894, pp. 247 and 350.

[3] Thus M. G. Maspero holds that the Egyptian people presents the characteristics of those white races which have been found established from all antiquity on the Mediterranean slope of the Libyan Continent. "This popula-

were successive and spread over a vast period of time, during which the process of upward physical and mental development was in continuous progress. Thus is explained the appearance of low human types (Neanderthal, Spy, Castenedolo) in various parts of Europe during late pliocene and early pleistocene times. They represent the first waves of migration from North Africa soon after the arrival of pliocene man in that region. But they were followed later by higher types, such as that of Cro-Magnon, which radiating from the Vézère district, gradually spread over a great part of Europe, and is by some ethnologists already regarded as the substratum of the present populations of West Europe. De Quatrefages does not hesitate to connect all the fossil remains found in Europe with "the white type[1]," and if these remains be regarded as so many transitional forms in the evolution of Homo Caucasicus, there can be no objection to that view. He also agrees with M. Verneau in identifying the Cro-Magnon race with those groups of tall, dolichocephalic Kabyles (Berbers) of fair complexion and often characterised by blue eyes, who still survive in various parts of Mauritania, and were even represented amongst the Guanches of the Canary Islands (p. 446).

The Cro-Magnon and other early European races affiliated to the fair Berbers of Mauritania.

But in consequence of his hypothesis of a northern origin of Homo Sapiens, De Quatrefages is obliged to introduce the Cro-Magnon race apparently from Siberia, "arriving in Europe simultaneously with the great mammals which were driven by the cold from Siberia, and no doubt following their route" (*ib.*). Thus their later migrations are described as following a southerly course, from Belgium, France, Iberia and Italy to North Africa and the Canaries. But the movements of the great mammals were not from north to south, but to and fro, over the Eurafrican Continent, for this fauna was essentially southern, and advanced and retreated synchronously with the advance and retreat of the ice sheet. Hence it is that this exceedingly diversified fauna is scarcely

tion is of African origin, and came to Egypt from the west or south-west" (*The Dawn of Civilisation—Egypt and Chaldæa*, English ed. by M. L. McClure, 1894).

[1] *Op. cit.* p. 441.

represented in Siberia except by the rhinoceros and mammoth, whereas the early and later species of elephant, lion, bear, hyæna, and hippopotamus abound in Britain, France, Italy and Greece.

Thus all the conditions point to North Africa as the true centre of dispersion for the pliocene and pleistocene mammals, which invaded Europe in successive waves of migration during those epochs, and which were admittedly accompanied by primitive man in ever increasing numbers. So thickly inhabited had some more favoured districts become in later, but still remote times, that the human remains brought to light by M. de Baye in the neolithic caves of the Marne basin already show an intermingling of no less than "six races, representing at least three quite distinct types, with an aggregate of characters and a physiognomy which closely recall what may be seen in the most modern craniological collections" (*ib.* p. 441). As these remains are all connected with the "white type" (see above), it follows that several varieties of Homo Caucasicus were already developed in neolithic times in West Europe[1]. It was suggested (p. 136) that none of these pre-historic peoples were of Aryan speech, from which a fresh argument may be drawn in favour of their arrival from North Africa, where no Aryan language was ever current before the Greek occupation of Cyrenaica (7th century B.C.). In this connection the importance of the survival of a non-Aryan form of speech, still spoken by the Basques on both sides of the Western Pyrenees, can scarcely be overrated. The significance of this fact is greatly increased since modern research tends more and more to connect both the Basque people and their primitive language with the indigenous Hamitic (Berber) race and language of Mauritania. We have seen (p. 205) that the late G. von der Gabelentz claims to have established a connection between the Basque and Berber linguistic groups. A similar connection

West Europe occupied by several varieties of Homo Caucasicus in the Stone Ages.

[1] The same inference is drawn by Prof. Kollmann from a study of the neolithic remains in the Swiss barrows, "welche zeigen aufs Neue dass die Lang-, wie die Breitgesichter von uralter Herkunft sind und schon damals verschiedene Varietäten neben einander lebten" (*Zeitsch. f. Ethnologie*, 1894, Heft V. p. 221).

The Ibero-Berber problem.

between the Basque and Berber physical types has long been proclaimed by French and Spanish anthropologists, and although a distinct Basque type has lately been denied[1], it has nevertheless been, so to say, reconstituted by the recent measurements of Basque conscripts taken on the French slope of the Pyrenees[2]. These measurements fully confirm the views of Dr. F. M. Tubino[3] regarding the identity of the Basques with the ancient Iberians, and their relationship to the fair Berbers of Mauritania, as well as to the fair Libans (Libyans) depicted on the Egyptian monuments of the 14th and 15th centuries B.C. It is also to be noticed that the megalithic monuments of Iberia, which abound especially in western Andalusia, in Portugal, Galicia and generally along the north coast, recall "rather the megalithic monuments of Northern Africa than those of Brittany and of the British Isles[4]." But despite local differences, which characterise all wide-spread cultures, it has already been pointed out (Ch. VI.) that all these neolithic monuments were erected by the same race, by whatever name they be called—Berbers and Libyans in Africa, Iberians and Turdetani in Spain, "Kelts," "Gauls," Picts in Gaul and Britain. This view is confirmed by the researches of Prof. John Rhys, Mr J. Gray and others, who are now disposed to give a wide expansion northwards to the Iberian race, identifying them with the Picts, that is, the Pictones of Poitou, and the indigenous Pictish inhabitants of the British Isles. Prof. Rhys certainly draws a distinction between Picts and Basques; but he supposes them to be "as nearly related to one another as Latins, Teutons and Kelts are held to be related within their own

Basques and Picts.

[1] "Il n'y a point de type basque" (Elisée Reclus, I. p. 855).

[2] Thousands of French Basque recruits have been examined by M. R. Collignon, who establishes a Basque type specially characterised by "le renflement du crâne au niveau des tempes, et le prodigieux rétrécissement de la face vers le menton," while in several respects recalling the features of the ancient Egyptians and Berbers (*La Race Basque* in *L'Anthropologie*, July 1894, *passim*). This anthropologist admits a difference between the short-headed French and the long-headed Spanish Basques, but holds that the French represent the purer type in every respect.

[3] *Los Aborigines Ibericos*.

[4] Wentworth Webster, *Academy*, Sept. 26, 1891.

Aryan family....I believe Picts and Iberians to have belonged to one and the same family, which I have ventured to call *Ibero-Pictish.* How nearly related Picts and Iberians may prove to be is a matter for future research[1]." But Mr Gray seems needlessly to separate the Basques from the Iberians, and to connect the former positively with the Picti of North Britain and the Pictones or Pictavi of South [West] Gaul. "The language of the Picts was Basque. The name Pict is derived from a Basque word, *pikatu*, to cut....The pre-Pictish inhabitants were probably Iberians, and prevailed mostly in Ireland, South Wales, Cumberland and South Scotland[2]." It is right to add that these conclusions are far from being accepted by some of the leading Keltic scholars, such as Mr Whitley Stokes and Prof. Windisch, both of whom still hold that the Picts were Kelts, "but more nearly allied to the Cymry [Welsh] than to the Gael [Irish][3]."

Family Tree of Homo Caucasicus.

But these discordant views on points of detail do not affect the main argument, that *Homo Caucasicus* had his origin in North Africa, and spread thence in palæo- and neolithic times over the whole of Europe, the Nile Valley and a great part of Asia. In the accompanying Family Tree are seen the chief branches, which have ramified from the parent stem during pre-historic and historic times.

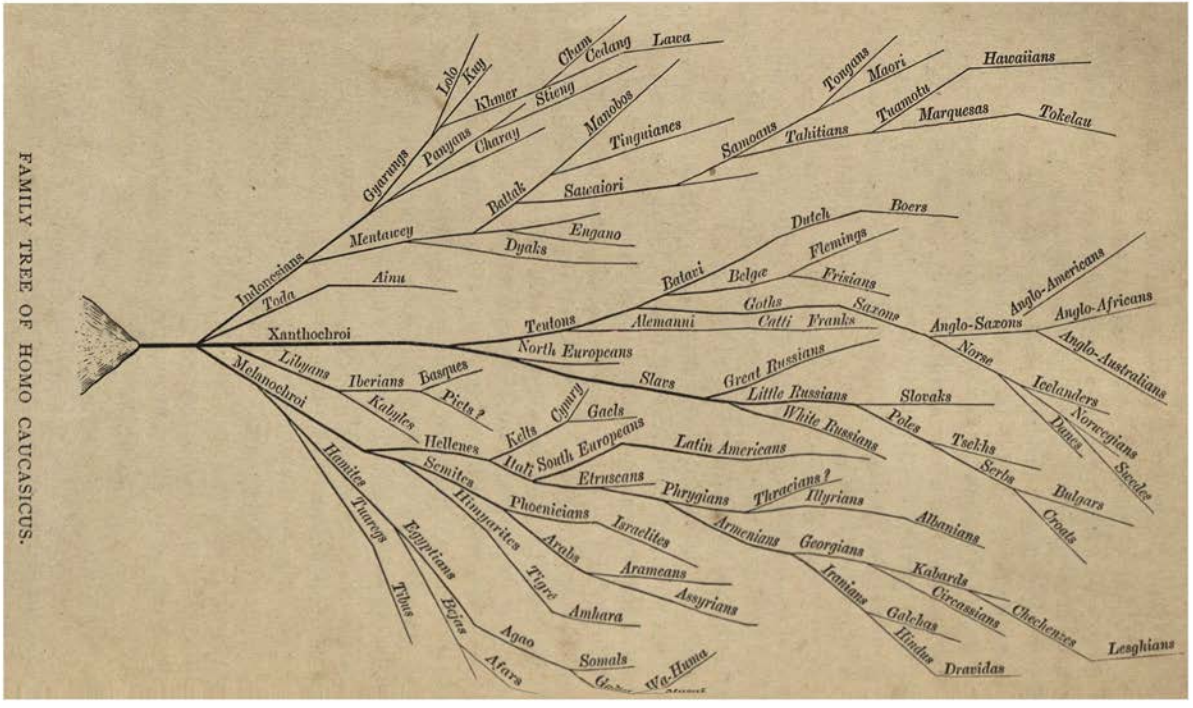
Xanthochroi and Melanochroi.

In all attempts at a classification of Homo Caucasicus, claiming to be something more than a mere linguistic grouping, the great initial difficulty is colour. So true is this that, as seen, Huxley and other recent systematists begin at once by splitting the whole division into two sections, a fair and a dark type—the *Xanthochroi* and the *Melanochroi* branches of our Family Tree. But even this is far from covering the whole ground. It not only leaves out of account the widespread *Indonesian* branch, here ramifying to the left, which is neither fair nor dark, but distinctly brown, but it also gives to the term "dark" a totally inadequate meaning. *Melanochroi* in fact

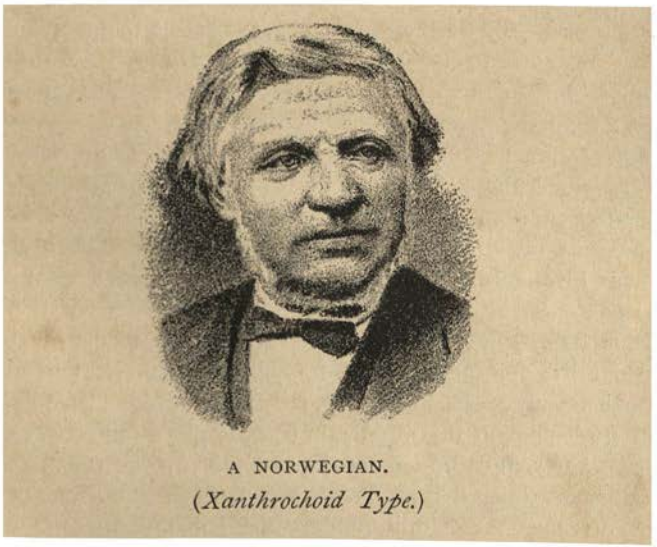
[1] *Academy*, Sept. 26, 1891.

[2] *Distribution of the Picts in Britain, as indicated by Place-Names*, Paper read at the Meeting of the Brit. Assoc. Oxford, 1894.

[3] W. Stokes, *The Linguistic Value of the Irish Annals.*


FAMILY TREE OF HOMO CAUCASICUS.
Indonesians
Toda
Ainu
Mentawey
Dyaks
Engano
Gyarungs
Lolo
Kuy
Klamer
Stieng
Panyans
Charay
Cham
Ceelang
Lawa
Manobos
Tinguianes
Batlak
Sawaiori
Xanthochroi
Teutons
Batavi
Dutch
Boers
Belgæ
Flemings
Frisians
Alemanni
Goths
Catti
Franks
Saxons
North Europeans
Anglo-Saxons
Anglo-Americans
Anglo-Africans
Anglo-Australians
Norse
Icelanders
Norwegians
Danes
Swedes
Slavs
Great Russians
Little Russians
White Russians
Slovaks
Poles
Tsekhs
Serbs
Bulgars
Croats
Samoans
Tahitians
Tongans
Maori
Tuamotu
Hawaiians
Marquesas
Tokelau
Melanochroi
Libyans
Iberians
Basques
Kabyles
Picts?
Kelts
Cymry
Gaels
Italo South Europeans
Latin Americans
Hellenes
Etruscans
Phrygians
Thracians?
Illyrians
Albanians
Armenians
Georgians
Kabards
Circassians
Chechenzes
Lesghians
Iranians
Galchas
Hindus
Dravidas
Semites
Hamites
Tuaregs
Egyptians
Himyarites
Arabs
Arameans
Assyrians
Phœnicians
Israelites
Tigre
Amhara
Agao
Somals
Afars
Bejas
Tibus
Wa-Huma

is not taken in its strict sense at all[1], having reference not to a "black," but to a "pale" colour of the skin usually accompanied by black hair and eyes: "West of the area occupied by the chief mass of the Xanthochroi, and north of the Sahara, is a broad belt of land, shaped like a Y. Between the forks of the Y lies the Mediterranean, the stem of it is Arabia...The people inhabiting the area thus roughly sketched have, like the Xanthochroi, prominent noses, pale skins, and wavy hair, with abundant beards;



A NORWEGIAN.
(*Xanthrochoid Type.*)

but, unlike them, the hair is black or dark, and the eyes unusually so. They may thence be called *Melanochroi*...They are known as Kelts, Iberians, Etruscans, Romans, Pelasgians, Berbers, Semites. The majority of them are long-headed, and of smaller stature than the Xanthochroi[2]." But within the Caucasic division there are several groups, such as the eastern Hamites (Bejas, Agaos, Somals, Gallas), and the Abyssinian Semites (Tigré, Amhara), besides many Hindus and Dravidas, who have not merely black hair and eyes, but

Blacks of Caucasic type.

[1] "Black-hued," from Gr. μέλας, black and χροιά, colour.

[2] Huxley, *Critiques*, p. 151.

also very black skins. Some even of the Sudanese Arabs, notably the Sheygyeh people between Dongola and Abu-Hammed, are remarkable for their extremely dark complexion, although claiming pure Arab descent. So also the Dasas, or Southern Tibus of the Sahara north of Lake Chad, and the Harratin, or "Black Berbers" of Tidikelt and the Saharan oases, many of whom are blacker than the average Negro.

Physical characters of Homo Caucasicus.

But it may be asked, on what ground are these dark groups included in the light-coloured Caucasic division, where their very presence seems to involve a contradiction in terms? The reason is, because they cannot be separated anthropologically from that connection. Apart from the colour, which in some cases appears to be the result of climate and in others is certainly due to an infusion of Negro blood, these "black Caucasians," if the expression can be tolerated, are amongst the very finest representatives of the Caucasic type. According to Messrs Flower and Lydekker, this type is distinguished generally by light skin, though in aberrant groups as dark as the Ethiopic; hair ranging from fair to black, soft, straight or wavy, in transverse section intermediate between the flat Ethiopic and round Mongol; full beard; skull variable, though mostly mesocephalic; jugal bones retreating; face narrow and projecting in the middle line (pro-opic); orbits moderate; nose narrow and prominent (leptorrhine); jaws orthognathous; teeth small (microdont)[1]. With regard to Huxley's blonde and dark divisions, these anthropologists hold that, despite differences of colour of eye and hair, they agree so closely in other respects that they are best regarded as modifications of one great type than as primary divisions. In any case they are now mostly blended together in diverse proportions, and even the blonde, though found chiefly in North Europe, extends to North Africa [where in fact it originated] and eastwards to Afghanistán. In this careful survey of the whole field, the dark division receives its full expansion, comprising not only black hair and eyes, but also a skin of almost every shade from white to black (p. 753).

There is thus no reason to create separate divisions for all

[1] *Op. cit.* p. 746.

White, brown and dark Hamites.

these groups, which possess so many physical characters in common. To do so would lead to nothing but confusion, as, for instance, in the case of the various Berber groups, all agreeing in their fundamental features, although some may be black, some brown or swarthy, some fairer than many Europeans. The black Harratins of the southern oases have for neighbours and kinsfolk the Kabyles of the Mauritanian uplands, "many of whom have a fair complexion and

BERBER.
(*West Hamitic Type.*)

blonde hair, recalling the peasantry of North Europe rather than the inhabitants of Africa[1]." Even the Arabised Berbers of North Morocco are described by Mr Walter B. Harris as "for the most part fair, with blue eyes and yellow beards, perfectly built and exceedingly handsome men[2]." Such features have been attributed to contact with the Roman colonists, and even to the Vandals, who invaded and occupied the whole of Mauritania in the 5th century. But the *Periplus* bearing the name of Scylax (Herodotus IV. 44) already mentions a people of fair complexion on the shores

[1] M. Shaler, *Esquisse de l'Etat d'Alger*, p. 119.
[2] *Proc. R. Geograph. Soc.* 1889, p. 490.

of the Lesser Syrtis, and the *Tamahu*[1] Libyans are figured on the Egyptian temples (1500—1300 B.C.) with a rosy skin, blue eyes and red or light hair. Similar traits occur even amongst the Tuareg Hamites of the Sahara, who are not known to have ever had direct relations either with the Romans or the Vandals. In a word, these Berber populations, forming the true indigenous element throughout North Africa, are essentially Europeans[2]. They were

The Tamahu Hamites and the "New Race" in Egypt.

A RIFF, NORTH COAST MOROCCO.
(*Berber Type.*)

not merely the allies, but the kinsmen of those blue-eyed and light-haired peoples (Pelasgians, Teucrians, Hellenes, Itali, Etrus-

[1] This word still exists under various dialectic forms (*Tamahûg, Tamashek, Tamazigt*) applied collectively to the Hamitic languages of the Sahara and Mauritania. The form *T-amazig-t*, when stripped of its fem. prefix and postfix particle *t*, is seen to be identical with the *Maxyes* of Herodotus (later *Masices, Mazices*), i.e. *Amzigh*, pl. *Imazighen*, "Freemen," the most general name of the Mauritanian Berbers.

[2] "Les Berbers de l'Atlas, en effet, et même la généralité des Touâreg..., sont physiquement de véritables Européens...Comparé à l'Arabe, ou à l'Européen, le Berber a des différences de physionomie, non des différences de type" (V. de Saint-Martin, *Nouveau Dictionnaire* etc., I. p. 411).

cans?), who in the time of Ramses II. descended from the islands of the Mediterranean on Lower Egypt, and who were expelled by Ramses' son and successor, Sethi II. of the 19th dynasty.

But long before the 19th dynasty a large part of Egypt had been occupied by a people of fair type, who held possession of a tract over a hundred miles in length between Abydos and Gebelen during the 7th, 8th and 9th dynasties, that is to say, about 5000 years ago. This is the so-called "new race," whose arts, industries, graves and osseous remains were unexpectedly brought to light in large numbers by Mr Quinbell and Prof. Flinders Petrie in 1894–5. "The race was very tall and powerful, with strong features: a hooked nose, long-pointed beard and *brown wavy hair* are shown by their carvings and bodily remains. There was no trace of the negro type apparent, and in general they seem closely akin to the allied races of the Libyans and Amorites....Though some objects point strongly to an Amorite connection, others indicate *a western source;* and it must be remembered that probably the Amorites were a branch of the fair Libyan race. The geographical position is all in favour of the race having come into Egypt through the western and great Oases; for the 7th and 8th Egyptian dynasties were still living at Memphis, showing that no people had thrust themselves up the Nile valley[1]." On one of the skulls in the collection of objects exhibited at University College, London, in 1895, the hair still adheres to the scalp; it is of a darkish, almost russet-brown hue, and very curly like that common amongst the Hellenes and other South Europeans. The "new race" must clearly have been a people of fair Caucasic type, probably of the same stock as the ancient Ibero-Libyans, that is, the above-mentioned Tamahu of later Egyptian documents. If so they are still perhaps best represented by the fair blue-eyed Berbers of Mauritania, and, despite their antiquity of some 5000 years, mark a relatively late stage in the eastward spread of the primitive Caucasic peoples from their North African cradleland. They thus afford unexpected confirmation to the views here advocated regarding Caucasic origins and early migrations through Egypt eastwards to Asia and southwards to Ethiopia. Gebelen, southernmost known

[1] H. M. Flinders Petrie, *Academy*, April 20, 1895, p. 342.

limit of their territory, lies not far from the frontier of Nubia, a region which since Roman times (Diocletian) has been occupied by Negroid tribes from Kordofan, but which had at an earlier period been held by the cultured Hamitic Blemmyes. It is noteworthy that these Blemmyes of *Æthiopia supra Ægyptum*, regarding whose affinities much doubt had long prevailed, are now regarded by Prof. Sayce as "of Berber race and language. Prof. Maspero has shown (in the *Transactions of the Society of Biblical Archæology*, Vol. I., p. 127) that in the time of the 11th dynasty a particular species of dog was called in Egyptian by the foreign name of *abakru*, which is the Berber *abaïkur* 'a dog,' from which we may infer that a Berber language was already spoken in the neighbourhood of Thebes. Herodotus (II. 42) asserts that the inhabitants of the Oasis of Ammon, the modern Siwah, were a mixed colony of Egyptians and Ethiopians; and since a dialect is now spoken there akin to those of the Tuaregs and Kabyles, it would seem that these Ethiopians were a Berber tribe....If my arguments are sound, we shall thus have to look to the Berber languages for an explanation of the Meroitic inscriptions[1]." The almost simultaneous researches of Prof. Sayce and of Prof. Petrie in the Nile Valley thus complement each other. They attest in the whole of that region the presence at a remote epoch of Hamitic Ethiopians and Libyans, and explain the juxtaposition of these two peoples in the Second Book of Chronicles, where it is asked, "Were not the Ethiopians and the Lubim a huge host, with very many chariots and horsemen?" (xvi. 8).

But, as already pointed out, M. Maspero holds the Egyptians themselves to be of the same race, and modern research has further shown that the Berbers and Tuaregs belong to the same physical and linguistic stocks as all the other Hamites—Bejas, Afars, Agaos, Somals, Gallas, Masai—who throughout all recorded time have occupied the eastern seabord from the equator to the Mediterranean, interrupted only by the Himyaritic Semite intruders in Abyssinia. The Afars, better known as Dankáli (pl. Danákil), who hold the low-lying steppe between the Abyssinian escarpments and the Red Sea, show "not a trace of prognathism," and

The Eastern Hamites.

Afars.

[1] A. H. Sayce, *Academy*, April 14, 1894.

are distinguished by "narrow straight nose, thin lips, small pointed chin not retreating, cheek bones not prominent, dark brown iris, pure white sclerotica, thick crisp hair, features South European[1]." So the wide-spread Beja family—Abábdeh, Bishári, Hadendáwa, Homrán, Beni-Amer and many others—whose domain extends from that of the Afars northwards between the Nile and the Red Sea, into Upper Egypt, and who have been identified with the Macrobii of Herodotus, "tallest and finest of men" (III. 17). In any case they are physically a magnificent race, with well-shaped muscular frames, tall stature, "of European type, often very handsome, of a bronze, swarthy or light chocolate complexion, with long, crisp, but not woolly hair, generally falling in ringlets over the shoulders[2]."

Bejas.

Despite a perceptible strain of Negro blood, conspicuous especially towards the ethnical borderlands, both the Gallas and their Somali cousins belong also fundamentally to the same eastern Hamitic branch of the Caucasic division. Of all Hamitic peoples the Gallas, who call themselves *Ilm'orma*, "Sons of the Brave," are by far the most numerous, being estimated at from 7,000,000 to 8,000,000, spread over a territory of some 400,000 square miles, including the whole of South Ethiopia (Gallaland proper), besides large tracts in North Ethiopia (Abyssinia), and most of the little known region which extends through the Lake Rudolf (Samburu) depression to and beyond the Tana river. The typical Gallas of Kaffa and surrounding uplands are perhaps the finest people in all Africa[3], tall, of shapely build, with high broad forehead, well-

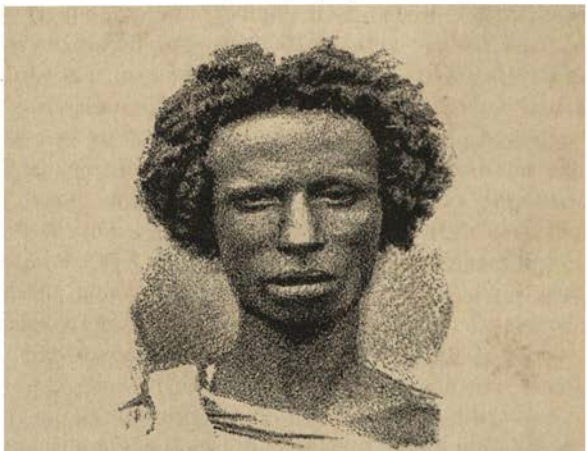
Gallas and Somals.

[1] "Le fattezze sono europee del Mezzogiorno" (Fr. Scaramucci and E. H. Giglioli, *Notizie sui Danakil*, 1884, p. 5). At p. 1, the features are said to be "Caucasian" despite a strain of Negro blood, as amongst all these eastern Hamites.

[2] Linant Bey (Linant de Bellefonds), *L'Etbaye, pays habité par les Bicharieh*, 1868. The Bejas are the *Buga* of the Axumite inscriptions, and the βλέμμυες of Strabo (17, § 53).

[3] "La race galla est la plus belle de l'Afrique...Les Gallas sont, en général, bien constitués. Ils ont une haute taille, le front large et élevé, le nez aquilin, la bouche bien coupée, le teint cuivré plutôt que noir" (Rochet d'Hericourt, *1er Voyage*, p. 174). So also Capt. Lugard: "a wonderfully handsome race, with high foreheads, brown skins, and soft wavy hair, quite different from the wool of the Bantus" (*Proc. R. Geograph. Soc.* 1892, p. 821).

formed mouth, Roman nose, oval face, coppery or light chocolate colour, black kinky hair, often worn in "finger curls" or short ringlets round the head—altogether noble representatives of the Caucasic family. In general the features are quite European, and even the complexion is no darker in some districts than that of the Andalusian peasantry[1]. The Somals also, whose domain comprises nearly the whole of the eastern horn of Africa, "are a very handsome race, of good physique, with excellent features[2]."



SOMALI.
(*East Hamitic Type.*)

By F. L. James they are "allied to the Caucasian type[3]," but owing to secular interminglings with Negroes, Arabs, Afars, Abyssinians and other conterminous peoples, it is difficult to determine a general Somal type. The colour varies from light brown to black, and it is noteworthy that the darkest groups often present the most regular features[4].

Farther south and west the eastern Hamites are represented

[1] Dr Beke, *Jour. R. Geograph. Soc.* XIV. p. 19.

[2] Commander F. G. Dundas, *Geograph. Jour.*, 1893, p. 211.

[3] *The Unknown Horn of Africa*, 1888, p. 7.

[4] "On dirait un beau sujet européen dont la peau serait noire" (G. Révoil, *Bull. de la Soc. de Géograph.*, 1880, p. 259).

Masai and Wa-Huma.

by the Masai nomads, and in the equatorial lake region by the Wa-Huma pastors, who, under diverse names (Watusi, Wahha, Wajiji, Warundi, Waruanda, &c.) are met scattered in small groups as far south as Lake Tanganyika. The Wa-Huma of Uganda, who are certainly of Galla descent, are described by Capt. F. D. Lugard as "tall, thin and lithe, with high foreheads and most intelligent faces; the eyes piercing, the features sharp, the nose often aquiline. In colour they vary, as do the Somals, some being very pale, others black. Some are remarkably handsome men....They were much struck with the Somals [in camp], who, they said, must be of the same race as themselves[1]." They hold themselves aloof from the surrounding Negroid populations, and despite the now prevailing dark shades, it is significant of their Hamitic origin that "the Waruanda call themselves white men, and deny all connection with the Bantu tribes[2]." Intermediate between the Wa-Humas and the Gallas proper are the Masai, some of whom, such as the Ngajé, Molilian and other full-blood tribes, are "the most magnificently modelled men conceivable....In most cases the nose is well raised and straight, as good as any European's, though passing into the Negro type in the lower class, such as the Wa-Kwafi....The jaws are rarely prognathous, while the hair is a cross between the European and the Negro[3]." Indeed an admixture of black blood is evident enough, despite the statement of Lieut. von Höhnel that "there is nothing of the Negro type in their appearance[4]."

Ethnical Relations in Abyssinia.

The presence of this element is still more conspicuous in Abyssinia, where the blends between Negroes, Hamites, and Semites are so multifarious and widespread that here nearly all the distinctive physical

[1] *The Rise of our East African Empire*, I. p. 158.

[2] M. Lionel Dècle, *The Watusi*, in *Jour. Anthrop. Inst.* May, 1894, p. 424. "The pure types," says this observer, "have long thin faces, with a long fine nose and a small mouth; their colour is of a rich brown without the violet black tints usually found in the Bantu races....The hair does not grow in woolly patches of a dull colour, but is of a glossy black evenly spread all over the head...very like the hair of the Abyssinians...In fact they appear to me like a kind of connecting link between the Abyssinian and Bantu types" (*ib.*).

[3] Joseph Thomson, *Through Masailand*, 1884, p. 427.

[4] *Discovery of Lakes Rudolf and Stefanie*, 1894, vol. I. p. 244.

characters of the different races have lost their significance. "Neither the colour nor the hair are regarded as important ethnical tests, and the length of the heel alone [Negro "lark-heel"] is held to be an undoubted proof of Negro origin[1]." To understand the present ethnical relations, it should be remembered that throughout the historic period Abyssinia has been the seat of powerful states, in which the dominant people have always been the Semitic Himyarites from south-west Arabia (Yemen). From the seaport of Adulis, founded by them on the coast below Massáwa over 2000 years ago, their progress may be followed along the sites of the ancient cities of Koloe, Ava and Axum, successive centres of their power during the first centuries of the new era. The indigenous populations, with whom they had to contend, were mainly Hamites, one large section of whom, the Agao[2], are mentioned in the Relation of Cosmas (523 A.D.) as already at that time subject to the Axumite kings. But others long maintained their independence, and in the 10th century were strong enough to expel the Menilek dynasty from Axum, a turning-point in the history of Ethiopia. Then the seat of government was shifted from the northern province of Tigré to the central region of Amhara, and by the close of the 17th century all the Hamite aborigines as far south as Shoa appear to have been brought under the sway of the Negus Negust, "King of Kings," representative of the old Axumite empire. During the course of these events the ruling Semitic classes were being slowly merged with their Hamitic subjects in a common Abyssinian nationality, which has further been modified by a large infusion of negro blood due to the long-standing institution of domestic slavery, as well as by contact with the Galla Hamites, who for over 300 years have been encroaching on the southern and central provinces from South Ethiopia. Thus the present inhabitants of Abyssinia proper form an extremely complex ethnical group, in which it is not always possible to distinguish the constituent elements. The prevailing colour is a

The present Abyssinian populations.

[1] De Quatrefages, *op. cit.*, II. p. 395.

[2] Cosmas writes Ἀγαῦ, and the name has been identified with the *Athagao* of the Adulis Inscription. It survives in the name of the large province of *Agaomedir*, "Agaoland," still mainly inhabited by these primitive Hamites.

distinct brown, shading northwards to a light olive and even fair complexion, southwards to a deep chocolate and an almost sooty black. There are Abyssinians who may certainly be called black, and in whom the negro strain is revealed in the somewhat tumid lips, small nose broad at base, and frizzly black hair. But the majority may be described as a mixed Hamito-Semitic people, who beyond question belong fundamentally to the Caucasic division.

Thus is established the substantial ethnical unity of the indigenous Hamitic populations of North and North-east Africa, as well as their direct relationship with the prehistoric inhabitants of Europe. Recent research tends further to show that these Hamites formed originally a single ethnical group with the Semites of south-west Asia, and philologists already speak of an organic connection between the Hamitic and Semitic linguistic families. Hamitic, of which there are three recognised groups—*Old Egyptian* with Coptic; *Berber*, including the Kabyle of Algeria, Shluh of Marocco, and Tamashek of the Sahara; *Ethiopian*, current in a great diversity of forms amongst the Gallas, Somali, Agaos, Afars and Bejas—belongs to the inflecting order of speech, and presents numerous points of contact with Semitic. The resemblance, however, is rather in the identity of their morphological base, than in the coincidence of fully developed grammatical forms. The subject is fully discussed by Dr Fritz Hommel[1], who establishes a close relationship in their phonetics, lexicography and structure between Semitic and Old Egyptian, and thus inferentially between both families. The pronominal systems are certainly alike both in their roots and in the process of plural formation; internal vowel change is also a common feature, though much more highly developed in Semitic than in Hamitic; both attach the pronominal elements in the same way to the persons in verbal inflection, and both mark the feminine both in noun and verb by the same letter *t*. In Berber this element is both prefixed and suffixed, as in *akli*, negro; *taklit*, negress.

Relations of the Hamites to the Semites.

[1] *Der babylonische Ursprung der ägyptischen Kultur*, Munich, 1892; and in *Beiträge zur Assyriologie* II. Heft 2, 1892.

This fundamental unity of speech points at fundamental racial unity in two groups occupying conterminous domains from all time, and otherwise closely resembling each other in their more salient physical characters. Support is thus lent to the views of those anthropologists who are disposed with Hommel to bring the Hamites from Asia, or with Prof. Jastrow, Dr Brinton[1] and others to find the cradle of the Semitic race in North Africa. The latter view will be held to be the more probable by those who regard Mauritania as the original home and centre of dispersion, not only of the Hamites, but of the Caucasic division itself, of which the Semites form one of the chief branches. Yet until comparatively recent times the Semitic domain was mainly restricted to the south-west corner of Asia, that is to say, the region comprised between the Iranian plateau and the Persian Gulf on the east, and the Red Sea and Mediterranean on the west, with no clearly defined limits towards the north. From this relatively narrow territory the Semites spread in prehistoric times to Abyssinia, and along the southern shores of the Mediterranean to and beyond the "Pillars of Hercules." Later the Arab Semites overran nearly the whole of North Africa, formed settlements along the East African seabord south to Sofala, and penetrated eastwards to Persia, Central Asia, India and Malaysia. Apart from the doubtful Hittites, there are five great historical groups: 1. The *Assyrians* of Mesopotamia; 2. The *Arameans* (Syro-Chaldeans) of Syria, parts of Palestine and the Lower Euphrates; 3. The *Canaanites* (Hebrews, Phœnicians, Carthaginians, and others) of Palestine and the Mauritanian seabord with

The Semitic Domain.

The Semitic groups.

[1] At a meeting of the Philadelphia Oriental Club 1890, papers on *The Cradle of the Semites* were read by Dr D. G. Brinton and Prof. Jastrow, the former contending that the Semitic stock came originally from "those picturesque valleys of the Atlas, which look forth toward the Great Ocean and the setting sun." While agreeing generally with this view of a probable Semitic migration from Africa to Asia, Prof. Jastrow held that there is not sufficient evidence to determine the particular region of Africa whence the dispersion took place. In fact, as here advocated, the whole area from the Mediterranean to Sudan must be included, as the Sahara presented in post-pliocene times a favourable *milieu* for the evolution of the highest human types.

settlements in Iberia, the Mediterranean islands, and Bahrein; 4. The *Arabs* of the greater part of the peninsula named from them; 5. The *Himyarites* of Arabia Felix (Yemen) and Abyssinia. Of these groups all but a few Syro-Chaldeans, the Hebrews, and the Abyssinian Himyarites, have either disappeared, or else been assimilated in speech to the Arabs, who may be said to have absorbed nearly all the other members of the Semitic family, much in the same way that the Latins absorbed all the other members of the old Italic family (Oscans, Samnites, Sabines, Umbrians).

Semitic physical and mental characters.

The Semitic type, as best represented by the Assyrians of the ancient monuments, by the Jews and by the Arabs, offers considerable diversity in the details but is essentially Caucasic in its main characters, being distinguished by perfectly regular and expressive features, fine oval face

ARAB.
(*Semitic Type.*)

and brain-cap, large and often aquiline nose depressed at the root, small pointed chin, forehead straight but not high, black almond-shaped eyes, dolichocephalic head, glossy jet-black hair, full beard, skin pale white but easily bronzed by exposure, stature rather below the average European (5 ft. 4 or 5 inches). This type, which in the upper classes often assumes an almost ideal beauty

fully on a level with the highest European standard, approaches nearest to the Hamitic, at least as represented by the Mauritanian Berbers, from which it differs chiefly in the more perfectly oval contour lines of face and head. Compared with the Aryan, the Semitic intellect may be described as less varied, but more intense, a contrast due perhaps to their monotonous and almost changeless environment of yellow sands and blue skies, with a flora and fauna limited to a few species, and these mainly confined to oases and steppes encircled by the desert and everywhere presenting the same uniform aspect. Hence to the Semites mankind is indebted for little philosophy and science, but for much sublime poetry associated with many profound conceptions of a moral order, resulting in the three great monotheistic religions—the Jewish, Christian and Muhammadan. Expansion and progress are the dominant characteristics of the Aryan, concentration and immutability of the Semitic intellect.

The Semitic Languages.

This mental temperament finds its outward expression in the Semitic form of speech, which is distinguished above all others for great stability and persistence; so much so that the various branches (*Assyrian*, *Aramaic*, *Hebrew*, *Arabic*, *Himyaritic*) may be regarded as mere dialects of a long extinct Semitic mother-tongue. They differ less from each other—Hebrew, for instance, from Syriac, or Assyrian from Arabic—than do many members of the same branch in the Aryan family—English from Gothic in the Teutonic, Hindi from Sanskrit in the Indic branch. "On comparing the Chaldean of the fragments of Esdras, representing the Aramaic of the 5th century B.C., with the Syriac still written in our day, scarcely any essential differences can be detected between texts composed at so long an interval. Between these two limits Aramaic may be said to have varied no more than the language of Cicero from that of Ennius[1]." Semitic speech presents some most remarkable phonetic and structural features, such as the series of deep gutturals (*kh*, *hh*, *q*, *gh*) unpronounceable by Europeans, and consequently of racial value; and the verbal roots, mainly triliteral, "moved" by vowels, but never changed in sound or sequence in

[1] E. Renan, *Histoire...des langues sémitiques.*

any of the branches; thus from root *qtl* = kill, Arab. *qatala*, Heb. *qátal* &c., "he killed." The whole verbal process, based on endless modifications of these roots within the prescribed limits, is without analogy in any other linguistic system, and presents structural phenomena which have hitherto defied all attempts at analysis. From the triliteral root were developed, chiefly by internal vowel change and prefixed servile letters (*h*, *t*, *n*, *s*), as many as 15 thematic forms (intensives, reciprocals, causatives, reflexives, iteratives &c.), in the Semitic mother-tongue, of which 12 or 13 are preserved in Himyaritic, 11 in Arabic, 5 in Hebrew and more or less in the other branches. Thus Arab. *qatala*, he killed; *qutala*, he was killed; *quttala*, he was utterly killed; *qátala*, *haqtala*, *taqatala*, *hinqatala*, *histaqtala* &c., each with its personal endings, gender, participles, but two tenses only, the complete and incomplete. Peculiar to the Arabic branch is another striking feature, the so-called "broken plurals," on which, being really singular collectives, secondary plurals may be built. There are over thirty typical forms, such as *jauhar*, a gem, *jawáhir*, jewellery; *amír*, prince, *umará*, the nobility; *káfir*, unbeliever, *kuffár*, the infidel; *qaríb*, a relation, *aqribá*, kindred, &c. Analogous forms survive in the cognate Himyaritic (*Geez* of Abyssinia); but the principle on which they have been developed has not been traced to any other member of the Semitic family.

The Aryan-speaking peoples.

It will be noticed that in the Caucasic Family Tree no room has been found either for "Aryans," or for the equivalent expressions "Indo-Europeans" or "Indo-Germans[1]." These are essentially linguistic, not racial terms, and the failure to distinguish between the groups of Aryan languages and the peoples of Aryan speech may be said to

[1] Strictly speaking *Aryan*, associated with the *Airyana Vaẓga* of Hindu and the Eéryené Veéjo of Persian traditions, is applicable only to the Indo-Iranian branch; but its convenient extension to the whole group is too long established to be now set aside, especially as the alternative expressions *Indo-European* and *Indo-Germanic* are themselves equally defective. They are purely geographical terms, and are far from covering the whole field, leaving out Irania and those other parts of Central and West Asia where Aryan-speaking peoples are indigenous.

lie at the base of the prevailing confusion regarding the ethnical relations in Europe, Irania, and India. It is not denied that, at some remote prehistoric epoch, there was evolved in some Eurasian region a community of Caucasic type and of primitive Aryan speech, to which might properly be applied the expressions Aryan or Indo-European. But for ages these expressions have lost their full value, and Aryan race and Aryan speech have long ceased to be convertible terms[1]. The language has persisted under diverse forms down to the present day, and indeed is now the dominant speech of the world. But the primitive community, with whom it originated, has disappeared as a distinct ethnical group, dispersed so to say amid the innumerable populations on whom it imposed one form or another of the Aryan mother-tongue. This process could have been effected only by migrations and actual contact, if not conquest, resulting in the absorption of the intruders and the survival of their language amongst the masses reduced or influenced by them. Thus it will be correct to say that an Aryan strain permeates all or most of the groups now speaking Aryan tongues, but not that these groups are themselves of Aryan stock. For it is to be remembered that, when the primitive Aryan man was first slowly evolved, the habitable globe was already fairly peopled by the diverse races, which, as we have seen, had established themselves in neolithic and even palæolithic times in the regions stretching from India to the shores of the Atlantic. Hence the Aryan migrations cannot be conceived as successive swarms going forth from some primeval Aryan cradleland, and for the first time peopling a great part of the northern hemisphere. Had these been the relations, the unity of the race, as well as of the language, would necessarily have been preserved. But the ground being

True character of the Aryan migrations.

[1] M. de Nadaillac asks, who are the Helvetians? the Gauls? the Kelts? the Scythians and Cimmerians? And in reply to those who make them members of "la grande famille aryenne," he remarks that "les Aryas pas plus que les Sémites ne sont un peuple ou une race; ils forment une agglomération d'hommes unis par des rapports linguistiques" (*Rev. des Questions Scientifiques*, Oct. 1894, p. 514). He should have said *far less than the Semites*, who do present, amid considerable diversity, a certain physical uniformity sufficient to constitute them a tolerably well-defined ethnical group.

everywhere, or almost everywhere, already occupied, the wandering Aryan tribes could not fail to form fresh ethnical groups with the indigenous inhabitants, and thus sacrifice their own racial purity. Thus it happens that throughout the historic period various branches of the Aryan stock language have been, and still are, spoken by almost every variety of the Caucasic division, by tall and short brachycephali, long-headed and round-headed Teutons[1], all called "Germans" because of their German idiom; by "Kelts" of so many types that the word has long ceased to have any ethnical

AN AFGHÁN OF ZERAFSHÁN.

significance; and by Armenians and Afghans often resembling Semites far more than ordinary "Aryans." We now see that it could not be otherwise, because, as explained in Chap. IX, the contact of two races speaking two distinct languages ultimately

[1] The typical German skull, as seen in the prehistoric graves, was highly dolichocephalic (mean index 71·3); yet at present brachycephaly increases continuously in the direction from north to south, so that in Bavaria it is almost universal. "Les Allemands du Sud sont essentiellement brachycéphales. En Bavière, entre autres, Ranke a trouvé que dans la plaine le nombre des individus présentant ce caractère est de 79 pour 100; sur les contreforts des montagnes la proportion monte à 83 pour 100; dans la montagne elle s'élève à 90 pour 100" (De Quatrefages, *op. cit.* II. p. 490).

results in the fusion of the races, but not of the languages, one of which must eventually prevail to the exclusion of its rival.

Illustrated by the Teutonic invasion of Britain.

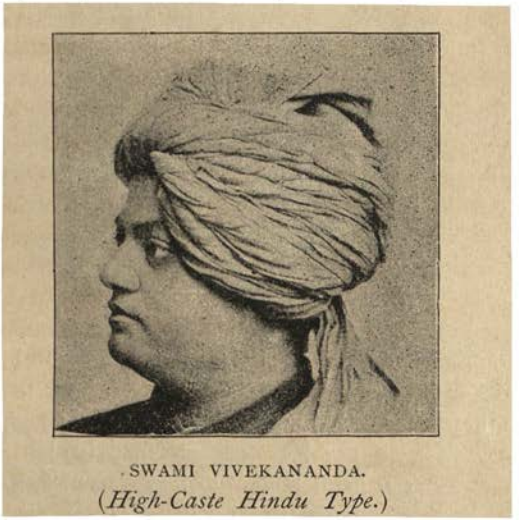
What occurred generally during the early Aryan migrations may be illustrated by what occurred in Britain after the withdrawal of the Romans and the arrival of the Angles, Saxons, Frisians and other allied Teutonic tribes. The old idea that these invaders made a *tabula rasa* of the land, repeopling it with their own stock, is no longer seriously entertained by any one. We now know, on the contrary, that the Teutons merged everywhere in diverse proportions with the Romano-Britons. Dr John Beddoe, who has devoted his whole life to these researches, finds interspersed amongst the Teutons numerous traces not only of the so-called "Kelts,"—related to Cæsar's Belgæ, and distinguished by rather broad head, slightly receding forehead, arched nose, prominent cheek-bones, long oval face, thin lips, pointed and projecting chin, light hair and eyes, and tall stature, averaging 5 feet 9 inches—but also of still more primitive peoples, neolithic "Ibero-Berbers" with long narrow head, dark complexion, flat narrow and square forehead, prominent mouth and cheek-bones, concave or straight nose, light or dark grey eyes, very dark and often curly hair, and short stature; and even a "Turanian" or Mongoloid element, with oblique eyes and brows, concave or flat nose, straight black or dark brown hair, broad cheek-bones and narrow chins[1]. Yet all these races were in a few generations so completely fused together in a common nationality of Teutonic speech, that the greater part of Britain might be supposed to have been originally settled by the intruders from north Germany in the 5th century.

And by the Hindu invasion of India.

So it was in India, Irania, Sarmatia and other parts of the present Indo-European domain, where small bands of Aryan speech imposed their language and culture on the surrounding populations, which have thus come to be regarded as of Aryan descent. In India Dr Gustav

[1] *The Races of Britain*, 1885, *passim*; and two papers *Sur l'Histoire de l'Indice Céphalique dans les Iles Britanniques*, contributed to *L'Anthropologie*, 1894, Vol. v. Nos. 5 and 6. This authority thinks that, even including the later Scandinavian arrivals, the Teutonic element amounts to not more than about one half in the greater part of England.

Oppert's investigations, spread over many years, tend to show that the Aryan invaders never were numerous, and that their influence on the aborigines was more social and religious than ethnical. Thanks to their higher culture and superior mental endowments, they imposed their religion on the masses everywhere throughout the peninsula, and their Aryan speech (Sanskrit) on most of the populations in the Indo-Gangetic regions[1]. At the census of 1891 as many as 195 millions were returned as of Neo-Sanskritic speech, of whom probably not five per cent. were full-



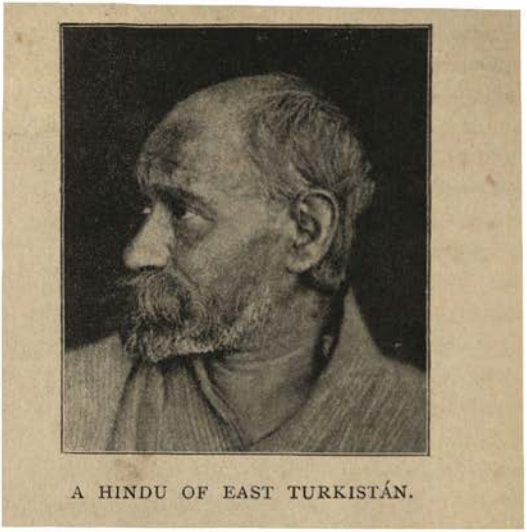
SWAMI VIVEKANANDA.
(*High-Caste Hindu Type.*)

blood Hindus of the higher castes. Even the haughty Rajpúts, formerly of the Kshatria (military) caste, have long lost their racial purity, and are now largely intermingled with Bhíls and other primitive non-Aryan races. The same process has been in progress for many ages on the Sarmatian plains, where the Scythian and other Mongoloid hordes have been gradually Aryanised by peoples of Slav and Gothic speech. The Gothic language, which still survived in the Crimea down to the 16th century[2], is now extinct,

[1] *On the Original Inhabitants of Bharatavarsa or India*, 1894, *passim*.

[2] H. Bradley, *The Goths*, 1888, p. 363. A list of words is here given, taken down by a Belgian traveller in 1562, from which it is evident that the

and nearly all these populations speak Great Russian and Little Russian dialects. Hence they pass for Aryan Slavs, just as the



A HINDU OF EAST TURKISTÁN.

short, dark, brachycephalic peoples of Auvergne and Savoy pass for Aryan Kelts.

The Aryan Cradleland.

From these considerations it would seem that somewhat undue importance has been attached to the quest of the Aryan cradleland, which in recent years has been prosecuted with so much zeal, in the belief that here would be found the original home of the multitudinous

language of Wulfila (Ulphilas) was still current in Taurida at that time. Such are *mine*, *wycha*, *wichtgata*, *ies* = Goth. *ména*, *méki*, *hweitata*, *is* (moon, sword, white, he). Of the Sarmatæ (Sauromatæ) nothing positive can be asserted, though it would appear that those known to Tacitus (*Germania*, ch. 1) were not of Mongolo-Tatar speech. Probably the bulk of the nation was originally of Mongol stock, but had at that time already been brought under Aryan (Slav?) influences. It is noteworthy that in their territory (South Russia) many recent ethnologists are disposed to place the primeval home of the Aryan race. But the question is beset with so many difficulties that those only who do not know venture to speak confidently. Thus the primitive Slav type appears to have been decidedly dolichocephalic, whereas the present Slavs are mainly brachycephalic (Ch. de Ujfalvy, *Le Berceau des Aryas*, etc., p. 25).

populations now speaking Aryan languages. Nevertheless, such an inquiry can never be devoid of interest, as bearing on the centre of evolution of a gifted prehistoric people who, more than any other, may be supposed by their very dispersion to have leavened the rude prehistoric masses, thus raising a great part of humanity to a higher social plane. But it is not to be imagined that the primitive Aryan groups stood themselves on a very high level, when they began to break up and spread abroad amid the surrounding populations. Their assumed superiority would seem to have been rather potential than actually established, and the organic elements of their speech show that, before the dispersion, they were a rude pastoral people, possessing cattle, sheep, goats and the watch-dog, but with scarcely a rudimentary knowledge of agriculture. They were half troglodytes, dwelling in winter in holes dug in the ground and roofed with turf, in summer either in round huts made of poles with interwoven branches, or in lumbering waggons with wheels and axle chipped and charred from a single stem. Originally they wore undressed skins, giving place later to garments roughly woven of wool and flax. They also made rude earthenware, but lived in the polished stone age with no knowledge of the metals, except perhaps copper, used more for ornaments than for weapons. The bride was captured or purchased, and the family was based on polygamous and patriarchal institutions; nor can there be any doubt that "ancient Aryan custom ordained that the wife should die with her husband," while "the custom of putting a violent end to the aged and infirm survived even into historic times[1]." It appears also that these primitive pastors dwelt in an open region with a continental climate, that is to say, severe winters and hot summers, so that they recognised but two or three seasons[2], reckoning the years as "winters" divided into "moons" and "nights," not months and days, and making no

Primitive Aryan culture.

[1] F. B. Jevons, *Prehistoric Antiquities of the Aryan Peoples*, being the "Sprachvergleichung und Urgeschichte of Dr O. Schrader," 2nd revised ed., 1889—90.

[2] Schrader says "two *or* three"; but van den Gheyn shows that "on a la preuve manifeste de l'existence de trois saisons, le printemps, l'été, l'hiver, chez les Aryas primitifs" (*L'Origine européenne des Aryas*, 1885, p. 11).

attempt to harmonize solar and lunar time. By the application of this "linguistic palæontology," as Pictet has called it, it is further concluded that the Aryan cradleland was in the nature of a steppe with a marked absence of mountains and continuous forests, but traversed by numerous broad and shallow watercourses, and with a poor flora distinguished by such hardy growths as the birch, poplar, willow, reeds and rushes.

Schrader's hypothesis.

Such are the general deductions drawn by Dr Schrader from a careful study of the common elements of primitive Aryan speech, and it is because these conditions appear to prevail to a greater extent in the South Russian steppes than elsewhere that, after some hesitation, this authority finally concludes "that the scene of the most ancient period of Indo-European development, the original home of our race, is to be looked for" in that region (*ib.*). This conclusion, however, has not been so generally accepted as is commonly supposed, and it has been rejected not only by most French anthropologists, but also by Ch. de Ujfalvy[1], Brünnhoffer[2], Orterer[3], von Roth of Tübingen[4], van den Gheyn[5] and others, who still hold by the Asiatic view first attacked by Latham towards the middle of the 19th century.

Conflicting views regarding the Aryan Cradleland reconciled.

But a glance at the map of Eurasia, with a consideration of the climatic conditions prevalent in the northern hemisphere in prehistoric times, may help to reconcile both theories. In the space stretching from the Urals to the Caucasus there are no natural barriers between the two Continents, while the Urals themselves are much too low and too gently inclined to offer any serious impediment to the migrations of primitive man, who was free to roam everywhere over the Aralo-Caspian depression and the Sarmatian plains from the Turkistan highlands westwards to the Carpathians. At present moisture decreases continuously eastwards throughout

[1] *Le Berceau des Aryas d'après des Ouvrages Récents*, 1884.

[2] *Ueber den Ursitz der Indogermanen*, 1884.

[3] *Literarische Rundschau*, 1884, No. 9, pp. 267 *et seq.*

[4] *Zeitschrift der D. M. G.* XXXVIII. p. 138.

[5] *Les Migrations des Aryas*, 1882; *L'Origine européenne des Aryas*, 1885, and other writings.

the whole of this steppe region, and the process of desiccation has been going on for ages generally throughout Central Asia. Thus the Zerafshán, the Dehas (Balkh), the Múrghâb, the Tejend and many other streams, which formerly reached the Oxus or the Caspian, now run out in the Kizil-Kum, the Kara-Kum and other sandy wastes of the Turkistan depression. But in neolithic times Turkistan was as suitable for human habitation as the South Russian steppes still are, and the long-abandoned prehistoric highway leading from Hyrcania to Baktriana is strewn in some places with numerous ruins now mostly buried under the surging sands of the wilderness. "The local traditions, historical records, and the ruins of numerous cities leave no doubt that the country was formerly far more densely peopled. The inhabitants have disappeared with the running waters; the powerful empires of the Oxus and Sogdiana basins have vanished; the great centres of Eastern civilisation have become eclipsed; many cultured peoples have reverted to barbarism and the nomad has triumphed over the agricultural state [1]."

The Eurasian steppe true home of the primitive Aryan groups.

In other respects there was nothing to choose between the eastern and western sections of the Eurasian plains, both of which equally presented the climatic, botanical and other natural conditions reflected in the common elements of Aryan speech [2]. It will therefore be more reasonable to place the Aryan cradleland in this Eurasian steppe region generally than restrict it either to the European or to the Asiatic sections, separated as these are by purely conventional limits. So difficult is it to draw any hard and fast line between the two zones, which are essentially one from the physiographical standpoint, that the present Russian government of Orenburg actually comprises both slopes of the southern Urals, that is, includes parts of Europe and Asia in the same administrative province.

[1] Reclus, English ed., VI. p. 162.

[2] "On fait beaucoup valoir pour la provenance européenne des Aryas les exigences du climat, de la faune et de la flore, révélées par la paléontologie linguistique dont les données réclament une contrée relativement froide. Faut-il sans cesse affirmer que ces conditions sont réalisées en Asie centrale?" (Van den Gheyn, *L'Origine européenne des Aryas*, pp. 42—3).

Thus may also be explained the apparently contradictory statements that the primitive Aryan communities were long in close contact with the Semitic peoples, while on the other hand their primitive culture was apparently the same as that which prevailed both in the early lacustrine settlements of Switzerland[1] and in the so-called *terramare*, or prehistoric stations of North Italy. As

M. KHRIMIAN, CATHOLICOS OF ARMENIA.
(*Irano-Semitic Type.*)

pastoral nomads these Aryan groups needed a vast space for the support of the numerous herds on which their existence depended. Thus while some roamed westwards and gradually penetrated up

[1] In a paper contributed to the *Revue des Questions Scientifiques* for October, 1894, on *Les Populations Lacustres de l'Europe*, M. de Nadaillac is disposed to associate these settlements with the first Aryan wanderings in neolithic times, and to give them an Asiatic origin. At the same time he admits that no distinct traces of Asiatic art, except perhaps the somewhat rare objects made of nephrite, have been discovered in the *débris*, though he is inclined to think that the jade objects are also more probably of Asiatic than of European origin, adding, "si la néphrite et la chloromélanite ont été importées d'Asie, pourquoi n'en serait-il de même pour les jadéites?" (p. 500). But far too much importance is attached to these questions, which could never prove anything more than commercial intercourse, such as is known to have already been established in remote prehistoric times between the Black Sea and the amber-yielding shores of the Baltic.

the Danube to and beyond the Swiss valleys, others advanced from the Turkistan steppe to the Iranian plateau and the head waters of the Euphrates, where they found themselves conterminous with the territory of the Assyrian Semites. Hence the distinctive hooked nose and other Semitic features still prevalent amongst the Armenian, Circassian and Iranian populations throughout the whole region between the Euphrates and Indus basins.

But when the cradleland is found the primitive Aryan group itself still eludes our grasp. As well seek in the raised dough the leaven of fermentation, as try to determine a primitive Aryan type. From the foregoing remarks it must be obvious that those described by ethnologists—as many as six are spoken of—are types, not of the original Aryan groups, but of the present Aryan-speaking peoples, and Virchow's challenge remains unanswered: "Who therefore will furnish the proof that the primitive Aryans were all dolichocephalous and had blue eyes, blond hair and a white complexion[1]?" It cannot be too strongly insisted upon, not only that the world was peopled before the Aryan dispersion, but also that tall, fair, long-headed peoples, such as are usually regarded as typical Aryans, had already been evolved in North Africa, and had thence spread over West Europe and Scandinavia while the Aryan nomads were still tending their flocks and herds on the Eurasian steppe lands. There were also other non-Aryan peoples in Europe long before that region was reached by the Indo-Germanic hordes. Such especially was that short, round-headed dark race, which has been called both "Kelt" and "Lapp[2]," and which is still represented by the Low Bretons, the

The primitive Aryan type difficult to determine.

[1] *Die Urbevölkerung Europa's*, p. 33.

[2] In one place de Quatrefages treats the round-headed populations of Savoy (Aix and Chambéry districts) as "tout au moins extrêmement voisines des Lapons" (*op. cit.* p. 455); in another these Savoyards "touchent de plus ou moins près à la race celtique," and are identified with the highland Galchas described by de Ujfalvy and Topinard. The Galcha skull measured by Topinard is said to present, "non plus de simples ressemblances, mais une identité à bien peu près complète avec les crânes les mieux caractérisés de Savoyards" (*ib.* p. 489). Topinard's language is very strong: "La reproduction frappante du type savoyard que nous regardons aujourd'hui comme une expression de l'ancien type celtique, plus parfaite encore que le type auvergnat

Auvergnats, the Savoyards, the Croatians and, as shown by de Ujfalvy, by the Galcha highlanders of the Hindu-Kúsh and Turkistan uplands. Thus wherever they presented themselves the Aryan tribes could only play the part of intruders, intermingling with the aborigines, imposing on them their speech and culture, and modifying in various degrees their physical type.

But probably Xanthochroid.

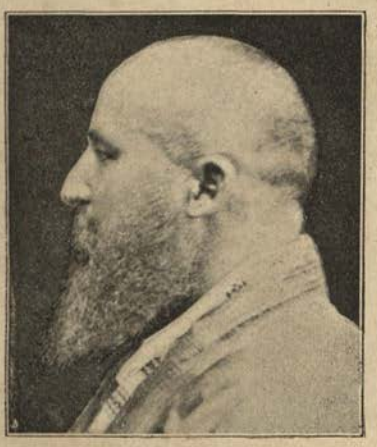
Nevertheless, all things considered, it seems probable enough that the typical Aryans belonged rather to the xanthochroid than to the melanochroid branch of the Caucasic division. This may be inferred from

A TAJIK WOMAN OF E. TURKISTAN.
(*Iranian Type.*)

the distinct blond strain, which is found permeating most Aryan-speaking peoples in varying proportions, and which seems best explained by the assumption of an Aryan element grafted on those

ou le type bas-breton" (*Rev. d'Anthrop.* Oct. 1878, p. 706). And thus the domain of the Keltic race is extended to the heart of Asia, while the whole of Europe is represented by Dr R. Cruel as occupied by "Turanian" peoples of Ural-Altaic speech before the arrival of the Aryans (*Die Sprachen und Völker Europa's vor der arischen Einwanderung*, Detmold, 1883, *passim*).

aborigines. Prof. G. de Lapouge aptly remarks that "no people amongst whom the fair long-headed type prevails makes use of non-Aryan languages and institutions, whereas the peoples where this type is not dominant make partial use of languages and institutions other than Aryan; they have done so within a recent historical epoch (part of Russia and Germany), or appear to have done so in ancient times (Gaul, Spain)."[1] The reference here is to the Esthonian, Livonian and Kúrland Finns of the Baltic provinces, now nearly extinct; to the numerous groups of Volga and other eastern Finns not yet absorbed by the surrounding



A TAJIK OF TASHKEND.
(*Iranian Type.*)

Slav populations; and in the west to the Iberi, Aquitani (?) and others of non-Aryan speech, now represented only by the Pyrenean Basques. Amongst all these the assumed Aryan element is perhaps less pronounced than amongst those more illustrious historical groups which are commonly regarded as full-blood or typical Aryans. Such are in the East the early Persians and the

[1] *L'Origine des Aryens*, Science, Aug. 4, 1893, p. 65.

Hindus, who occupied the Iranian tableland and the Indus basin respectively some thousand years ago, and in the West the Hellenes, Teutons and others who under diverse names swarmed into South-east and Central Europe, if not in the neolithic and bronze periods, certainly in the first iron age, that is, the epoch represented by the Hallstadt culture and by the extensive sepulchral

GREEK OF CYPRUS.

mounds (over 20,000) brought to light on the Glasinac (Glasinats) plateau near Sarayévo since the Austrian occupation of Bosnia[1].

To the close linguistic unity by which these widely-scattered groups are connected corresponds a certain ethnical unity, indicated especially by their common dolichocephaly and fair complexions, later obscured in many places by miscegenation with the

[1] A detailed account of this vast prehistoric necropolis is given by Herr Salomon Reinach in *L'Anthropologie* for September—October, 1894, pp. 563 *et seq.*

aborigines of the regions severally occupied by them. It was above shown that the early Teutons were certainly long-headed, as were also the Hellenes[1], while "the primitive Greek skull appears to present a very close resemblance to that of the high-caste Hindus, and this in its turn almost exactly reproduces that of the dolichocephalous Persians[2]."

It is difficult to resist the conclusion that we have here, if anywhere, the nearest approach to the original Aryan type, which

PARSI OF BOMBAY.
(*Iranian Type.*)

LIBR OF BO ROYAL A

would have thus resembled that of the Afro-European as represented by the Mauritanian Berbers, by Mr Petrie's "new race" in Egypt, and by early neolithic man in West Europe. To account for this remarkable coincidence, it is only necessary to assume a twofold dispersion of the primitive Caucasic groups from North

[1] Proved by the extensive researches of Sig. Nicolucci and Dr Hamy. The last mentioned describes a Greek skull of the 10th Century B.C., now in the Paris Anthropological Collection; but "en Grèce comme ailleurs, le type primitif a été altéré par le croisement" (De Quatrefages, *op. cit.* p. 494).

[2] De Quatrefages, *op. cit.* p. 494.

Africa, one northwards to Iberia and West Europe, the other eastwards into the Semitic domain (South-west Asia) and thence northwards to the Eurasian steppes. Both of these movements must in any case be accepted to account for the relations between Berbers and West Europeans on the one hand, and on the other between the African Hamites and the Asiatic Semites, as above set forth.

The Aryan problem summed up.

To sum up this difficult Aryan question, the Aryan peoples must be regarded, not as a single ethnical stock, but as an amalgam of many Caucasic, and no doubt some Mongolic elements, leavened by an original xanthochroid strain, and endowed with a certain racial uniformity by the immense preponderance of the Caucasic physical characters, and by the general adoption of Aryan speech, traditions and institutions. The process of fusion, resulting in the historic Aryan peoples, had its beginning with the first contact of the migrating tribes with alien races after the dispersion from a common cradle-land, and this process has never ceased throughout historic times. It is now developing new and often profoundly modified Aryan-speaking groups in North America (Franco-Canadian half-breeds), throughout Spanish and Portuguese America (Mestizos of all varieties), in South Africa (Dutch-speaking Hottentot half-breeds), in Indo-China (Franco-Annamese), in North Russia and Siberia (Russo-Finns and Russo-Tatars) and elsewhere. But as a rule the Anglo-Saxon or British Aryans, who are by far the most numerous and widespread out of Europe, do not amalgamate with the aborigines. Hence Anglo-American, Anglo-African and Anglo-Australian half-castes are rare, and the modifications of the Aryan types undoubtedly going on in the "Greater Britain" beyond the seas are due, not to miscegenation with lower races, but partly to the changed environment, partly (North America) to fusion with Germans, Scandinavians, and other fellow-Aryans.

Recent expansion of the Aryan-speaking peoples.

The Aryan Linguistic Family.

In the Aryan linguistic family, in which root and formative elements are, so to say, chemically combined, the inflecting principle receives its most perfect expression (Chap. IX.). All the branches (which recent research has raised from eight to ten by the addition of the Galchic

group[1] and the removal of Armenian[2] from the Iranic connection) spring directly, but in various divergent lines, from a primitive Aryan stock language long extinct past recovery, and all attempts at the reconstruction of which have proved abortive. The divergent lines represent each a distinct branch of the mother-tongue, and the divergence began at such a remote epoch that the mother-tongues of the several branches themselves are also irrecoverably lost. Not only so, but the earliest known forms of these different groups are already so profoundly differentiated from each other that their common relationship alone can be demonstrated; the order of their divergence from the parent stem, or from some now lost intermediate stems, remaining more or less conjectural. Each group comprises two or more subdivisions, which again throw off numerous branchlets, the whole forming an exceedingly complex system, which will be best understood by the subjoined :—

[1] The researches of Ch. de Ujfalvy (*Bul. de la Soc. de Géogr.* June, 1878, and numerous other memoirs), of Major Biddulph (*The Tribes of the Hindoo-Koosh*), Robert Shaw (*On the Galtchah Languages* in *Jour. As. Soc.* Bengal, XLV., 1876, and XLVI., 1877), Prof. Tomaschek (*Die Pamir-Dialekte*) and Prof. W. Geiger (*Ostiranische Kultur im Altertum*) have placed beyond doubt the existence of numerous primitive Aryan languages on both slopes of the Hindu-Kush and on the western escarpments of the Pamir, to which de Ujfalvy has given the collective name of *Galcha*, and which hold an independent position somewhat intermediate between Baktrian (Zend) and Sanskrit. "Il est certain que les idiomes de l'Asie centrale ont mis sur la piste de plusieurs formes intermédiaires qui manquaient pour renouer la chaîne parfois interrompue qui relie le sanscrit au bactrien" (J. van den Gheyn, *Les Langues de l'Asie Centrale*, Leyden, 1884, p. 27).

[2] At a meeting of the Philological Society, May 13, 1892, the late Mr G. A. Schrumpf read a paper on "The Place and Importance of Armenian in Comparative Philology," confirming the view of Prof. Hübschmann that the Krapar or old literary language of Armenia forms with its modern representatives an independent group in the Aryan family, distinct from Iranic with which it has hitherto been connected, and showing certain features intermediate between Iranic and Slavo-Lithuanic. It thus serves to bridge over the gap between the Asiatic and European divisions, and as Dr Fr. Müller suggests, its nearest congeners may have been the Thrakian (and Phrygian) formerly current on both sides of the Bosphorus. Others however, with Karl Blind, affiliate Thrakian to the Teutonic branch, a view for which there is much to be said.

TABLE OF THE ARYAN LINGUISTIC FAMILY.

INDIC BRANCH	Early Sanskrit (Vedic) / Later Sanskrit → The Prakrits (Vulgar Sanskrit) → Neo-Sanskrit	Kashmíri, Panjábi, Maráthi, Hindí, Bengáli, Oríya, Assami
IRANIC BRANCH	Eastern Group	Baktrian (Zend), Púshtu (Afghán)
	Western Group	Old Persian, Pahlávi, Neo-Persian, Kurdish, Balúchi
GALCHIC BRANCH	Pamir Group	Shignáni, Iskashámi, Wakhi, Sanglichi, Yagnobi, Minghání, Yidghah
	Hindu-Kush Group	Gilgit, Astor, Torwálák, Gowro, Bushkarik, Narisati, Khowar, Bushgali
ARMENIC BRANCH		Old Armenian, Modern Armenian, Ossetian, Thrakian (?), Phrygian (?)
HELLENIC BRANCH	Illyrian Group	Old Illyric, Albanian: Tosk, Gueg
	Pelasgic Group	Æolian, Dorian, Ionian, Attic, Byzantine, Romaic
ITALIC BRANCH	Oscan, Sabine, Umbrian	(Extinct)
	Latin, Vulgar Latin, Neo-Latin	Italian, Langue d'Oc, Langue d'Oil (Standard French), Spanish, Portuguese, Rumanian, Romansch
KELTIC BRANCH	Gædhelic: Irish, Gælic, Manx	
	Kymric: Welsh, Cornish, Low Breton	
LITHUANIC BRANCH		Lithuanian, Lettic, Pruczi (Old Prussian)
SLAVIC BRANCH	Eastern Group	Old Slavonic, Great Russian, Little Russian, Servo-Croatian, Slovenian, Bulgarian
	Western Group	Tsekh (Bohemian), Polish, Polabish, Lusatian, Slovak
TEUTONIC BRANCH	Low German Group	Gothic, Frisic, Dutch, Continental Saxon, Anglo-Saxon, English, Lowland Scotch
	Norse Group	Old Norse, Icelandic, Norwegian, Danish, Swedish
	High German Group	Old, Middle and High German, Rhenish, Thuringian, Swiss, Suabian

Disintegration of primitive Aryan speech.

The profound disintegration which is shown in this Table, and which is immeasurably greater than in the Semitic family, is mainly due to the spread of Aryan speech amongst non-Aryan peoples, by whom its phonetic system and grammatical structure were diversely

modified. But apart from these potent outward influences, all the Aryan tongues have, throughout their historic life, betrayed an inner tendency to break up the highly developed inflectional forms of the early languages, such as Sanskrit, Baktrian, Greek and Latin, and thus continue their natural evolution in the direction from synthesis towards analysis. Thus the Romance (Neo-Latin) gradually rejected all case endings and passive verbal forms, and the Latin *amabor*, for instance, is now expressed by three words in Italian and French: *io sarò amato*; *je serai aimé*. It would require four in English (*I shall be loved*), and in this respect English is the most highly developed, that is, the most analytical, of all Aryan languages, having retained scarcely a dozen of the many hundred inflections characteristic of primitive Aryan speech.

The Teutonic group, of which English is now the chief member, the *Weltsprache* as the Germans call it, presents some remarkable phonetic features which give it an unique place in the Aryan family. In this group the organic Aryan mutes undergo two distinct series of permutations, in accordance with the so-called law of *Lautverschiebung* ("sound-shifting") discovered by Rask, developed by Grimm and completed by Verner. The first series of shifts took place in prehistoric times, and is found already fully carried out in Gothic, the oldest known member of the group. In this process the surds or voiceless stops *p*, *k*, *t* first become everywhere the voiceless spirants *f*, *h*, *th*; then these spirants, when medial and in association with sonants, become themselves the sonant or voiced stops *b*, *g*, *d*, always in weak syllables, and also in strong syllables before the accent; but when they follow the accent the second shift is arrested, and they remain voiceless spirants. The influence of the Aryan accent, first noted by Verner, is seen in such examples as Sanskrit *ántara*, Gothic *ánthar*, Anglo-Saxon and English *óther* for *ónther*, with single shift only (*t* to *th*) because the accent precedes; but Sansk. *antár*, Goth. *undar*, A.-S. and Eng. *under*, with double shift (*t* through *th* to *d*), because the accent follows. The process extends in A.-S. and Norse to the organic voiceless spirant *s*, which similarly passes through *z* to *r*, as in Goth. *dius* (for *diuz*), Norse *dýr*, A.-S. *deór*, Eng. *deer*. The

The Teutonic phonetic system.

second series of shifts is historical, no trace of it occurring in the Gothic of Ulphilas (4th century), or in any extant Teutonic forms (geographical or personal names &c.) before the 7th century. Its later appearance is also shown by the fact that it never spread to the whole of the Teutonic domain, but is mainly confined to the South German highlands, where the process was continued sporadically to about the beginning of the 12th century. The South German dialects were thus constituted a distinct group under the name of *Hoch-Deutsch* ("High German") in contradistinction to the *Platt-Deutsch* ("Flat" or "Lowland German") of the northern plains, which were unaffected by the process, and which consequently remain in their phonetics truer representatives of primitive Teutonic speech. The process itself is due to a general tendency to strengthen the mutes, so that the soft sonants (*b*, *g*, *d*) become hard surds (*p*, *k*, *t*), while these become hard (voiceless) spirants (*pf* or *f*, *h* or *ch*, *ts* written *z*). Thus the *Catti* of the Romans pass through such forms as *Chatti*, *Hatti*, *Hazi*, *Hassi* to the modern *Hessians*. But the rotation is arrested at the hard spirants *f*, *h*, *th* of the prehistoric series (representing organic *p*, *k*, *t*), because these are incapable of further strengthening. Hence it is that the primitive Teutonic *f* and *h* persist in High German (Gr. κύων, Goth. *hunds*, Germ. *hund*, Eng. *hound*). Surd *th*, however, passes through sonant *th* (*dh*) to *d*, and later further changes take place in the Hoch-Deutsch group, which thus becomes differentiated into *Old* (7th to 11th century), *Middle* (12th to 15th) and *Modern High German*. In general the dental are much more fully carried out than the labial and guttural shiftings, so that the primitive surd *th* (as in *thin*) passes through sonant *th* (as in *then*) to *d* in the Low as well as in the High German group, but not in A.-S. and English, which thus stand phonetically on the same high level as Gothic itself, that is, nearest to the organic Aryan speech. Hence it is that words like *three* (Goth. *threis*, A.-S. *threo*), *thorn* (Goth. *thaurnus*, A.-S. *thorn*) &c., appear both in Low and High German with initial *d*: Dutch *drie*, *doorn*; Ger. *drei*, *dorn*; all representing organic Aryan *t*, as in Sans. *tri*, Gr. τρεῖς &c.[1]

[1] A. H. Keane, *Teutonic Languages*, in Cassell's *Storehouse of Information*, 1894, p. 243.

In the Caucasus the ethnical and linguistic relations present a marked contrast to those prevailing in all other parts of the Caucasic domain. Probably more stock languages are current amongst the few hundred thousand natives of this relatively small mountainous region, than amongst the myriads of other Caucasic peoples spread over both hemispheres. The highlanders themselves belong to the melanochroid division, and some of the groups, such as the Georgians, Circassians, Kabards and Lesghians, approach an almost ideal standard of physical beauty. But considerable diversity prevails, and the Pshavs, Svanitians and others confined to less favoured districts, have coarse, almost repulsive features and ungainly figures. We have seen (p. 93) that the Caucasus was already occupied by palæolithic man, although perhaps not to a great extent. But in the polished stone age the whole region appears to have been thickly inhabited, as shown by the numerous dolmens, lacustrine stations, and other remains of a culture closely analogous to that of neolithic man in Europe. According to the researches of M. Chantre these prehistoric peoples were long-headed, and in other respects resembled the Iranians and the high-caste Hindus. But, since then, great interminglings have taken place, with the result that the physical characters have been gradually modified in the direction of the brachycephalous dark type[1].

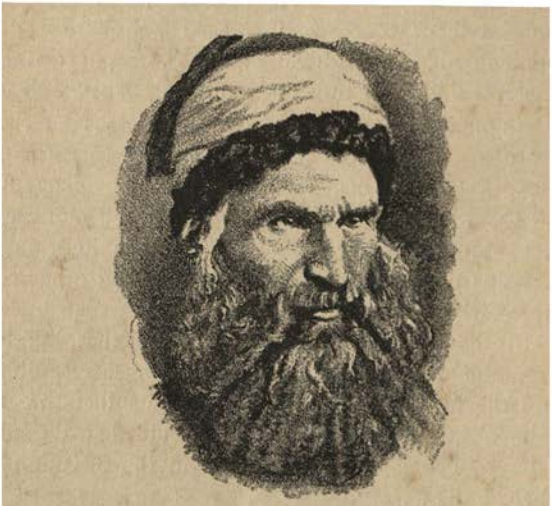
Ethnical and linguistic relations in the Caucasus.

From this it would almost seem as if Caucasia was originally occupied by primitive Aryan tribes of the xanthochroid type, although of the numerous distinct languages now spoken in these uplands one only, the Ossetian, is a member of the Aryan linguistic family. All the others belong, not to the inflecting, but to the agglutinating order of speech, without however showing any clear relationship with the Uralo-Altaic or with any other linguistic family. They are usually grouped in three main divisions: the *Southern*, comprising the Georgians, Imeritians, Mingrelians, Svani-

[1] "M. Chantre a mis en série dix-sept indices moyens pris sur autant de populations anciennes et modernes; et on voit l'indice grandir d'âge en âge, depuis 71·55 (Samthavro, premier âge du fer) jusqu'à 86·48 (Ossettes de Koban modernes)" (De Quatrefages, *op. cit.* p. 475).

Main divisions of the peoples and languages of Caucasia.

tians, Khevsurs, Pshavs and Lazes, all speaking distinct branches of a common stock language, supposed by Sayce to be the "Vannic," that is, the language of the Cuneiform Inscriptions of the Lake Van district. The *Western*, comprising the now dispersed Circassians and Abkhasians besides the Kabards, Shapsukhs and others, also speaking languages believed to be derived from a



KABARDIAN OF CAUCASUS.
(*Melanochroid Type.*)

common source. The *Eastern*, comprising all the Daghestáni peoples, Chechenzes, Lesghians, Avars, Galgai, Ingushes, Kishi, Tushi, Karabulaks, Kurini, Kubáchi, Duodez, Ude, Dido, Dargo, Andi and many others, whose various idioms have hitherto resisted all attempts of the philologists to reduce them to a common stock language. Some may be grouped in a single family; but others, and especially the Ude, Kubáchi, Andi and Dargo, must for the present be regarded as so many stock languages. In the South Daghestáni tongues agglutination has reached such a high development that General P. V. Uslar, the first authority on this subject,

calls them inflecting, which confirms the views advocated in Chap. IX. regarding the evolution of the higher from the lower orders of speech[1].

Ethnical and linguistic relations of the Dravidas.

The greater portion of South India (the Deccan) is occupied by an indigenous people numbering over 50 millions, collectively known as *Dravidas*, and speaking dialects of an agglutinating stock language. The chief members of this group, whose ethnical position it is difficult to determine, are the *Telingas* (Telugus) of the Northern Circars and part of the Nizam's territory; the *Tamils* of the Karnatic, South Travancore and North Ceylon; the *Kanarese* of Mysore, the southern districts of the Bombay Presidency, and of Kanara on the Malabar Coast; the *Malayálim*, on the same coast south of the Kanarese; the *Kodagu* of Kúrg, west of Mysore; the *Oráons* and *Rajmahálí* of Chota Nagpúr; the *Gonds* of Gondwána, Vindhya Hills. Although they preceded the Aryan-speaking Hindus, the Dravidas are not the true aborigines of the Deccan, for they were themselves preceded by dark peoples, probably of aberrant Negrito type (Chap. XI.). They are usually regarded as a Mongoloid people, who entered India from the north-west, leaving on the route the Brahúis of Baluchistán, whose language shows some remote resemblance to Dravidian. But at present the type cannot be called Mongolic; it scarcely differs from the average Hindu, except in some districts, where it has been somewhat modified by contact with the Kolarians and dark aborigines. Hence they are grouped with the northern Hindús by Peschel, who remarks that "their most noticeable feature is their long black hair, neither tufted nor straight, but crimped or curly. This clearly distinguishes them from the Mongoloid natives, as does the fact that the hair of their beard and bodies grows profusely....The inhabitants of India form at present but a single race, and the separation of the populations resident between the Himálayas and the Vindhya Mountains from the Dravidas of the Deccan is based solely on the fact that the

[1] Uslar's Memoirs on the "Caucasian Microcosm," as he calls it, are dispersed amongst the Bulletins of the Petersburg Imperial Academy of Sciences, and in the publications of the Imperial Geographical Society. But a useful summary *Sur l'Ethnographie du Caucase* is supplied by M. Michel Smirnov to the *Rev. d'Anthrop.* for April, 1878.

former speak languages which are descended more or less directly from the Sanskrit[1]." It would thus seem that the position of the Indian Dravidas is somewhat analogous to that of the European Magyars. Both have been assimilated to the Caucasic type, and both have accepted Aryan culture, while preserving intact their non-Aryan speech.

Sporadic Caucasic groups.

The hirsuteness to which Peschel here refers occurs in a still more pronounced form amongst a few sporadic groups, such as the Todas of the Nilghéri Hills, and the Ainus of Japan, who may be taken as living witnesses to the widespread diffusion of the Caucasic race throughout Asia in remote prehistoric times.

Todas.

Although now of Dravidian speech, the Todas (properly Toruwa "Herdsmen"), are distinguished from all the surrounding populations by their splendid physique, perfectly regular Caucasic features, black wavy hair, full flowing beard, aquiline nose, light brown complexion and tall stature (5 ft. 9 in.)[2]. With the Todas de Quatrefages groups both the Kubus of Sumatra and the Ainus of North Japan. But the Kubus, although called "hairy men" by Col. Versteeg[3], must be removed from this connection, for those seen and figured by Mr H. O. Forbes[4] exhibit no such peculiarity, while on the osteological evidence Dr J. G. Garson declares them to be "decidedly Malays and therefore Mongoloid[5]."

Ainus.

Not so the "Hairy Ainu," as they are correctly called by Mr A. H. Savage Landor[6], one of the many observers who have described these aborigines of North-east

[1] *Races of Man*, p. 451. This view is fully in accordance with the now fairly established assumption that Aryan culture spread gradually southwards by a process of infiltration, resulting in a general fusion of the northern Hindus with the pre-Aryan peoples of the Deccan and Ceylon. Here again the slight Aryan-speaking element plays the part of the leaven in raising the aborigines to a higher plane of culture.

[2] W. E. Marshall, *A Phrenologist amongst the Todas*, 1873, *passim*.

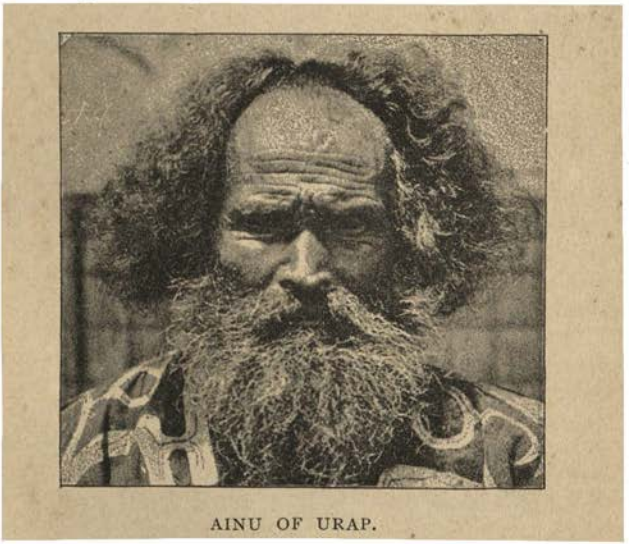
[3] "Ce savant les appelle *hommes à poil* et dit qu'ils sont entièrement velus" (*Races Humaines*, II. p. 468).

[4] *On the Kubus of Sumatra*, in *Jour. Anthrop. Instit.* April, 1884, p. 121.

[5] *Ibid.* p. 132.

[6] *Alone with the Hairy Ainu*, 1893.

Asia at first hand in recent years. Although now confined to Yezo, part of Sakhálín and the southern members of the Kurile Archipelago, their territory appears to have formerly comprised a great part, if not the whole of Japan[1], besides large tracts on the opposite mainland. In the national traditions there was a time when they could look out on their watery domain, and exclaim, "Gods of the sea, open your divine eyes. Wherever your eyes turn, there echoes the sound of the Ainu speech[2]," a speech now current amongst scarcely 20,000 full-blood and half-caste survivors



AINU OF URAP.

of this remote Asiatic branch of the Caucasic division. Despite the attempts of some writers to affiliate them to the surrounding Mongoloid peoples, their claim to membership with the Caucasic family is placed beyond doubt by a study of their physical characters. The features are not only regular in the European sense, but often quite handsome, with large slightly curved nose, clear

[1] "From the relics of the Stone Age and of the Kitchen middens of Japan, Professor Milne concludes that the Ainos once inhabited Japan as far south as Kiushiu" (Romyn Hitchcock, *The Ainos of Japan*, Washington, 1892, p. 435).

[2] Quoted by the Rev. John Batchelor, *The Ainu*, of Japan, 1892.

brown or greenish eyes set straight in the head, and olive brown or fair complexion. But the most striking trait is the abundance of coarse black wavy or crisp hair on head, face and body. "The Ainos are characterized by a strong growth of hair about the legs and body, long black hair on the head, and heavy beards[1]." The type, however, varies, and those of Yezo differ considerably from the Tsuishikari Ainu of Sakhálín, while the low stature (5 ft. 2 or 3 in.) and the skull of all shapes, long, round and intermediate, seem to betray secular interminglings with the neighbouring Mongoloid peoples[2].

For the INDONESIANS, ramifying to the left of our Family Tree, see Chap. XI.

[1] Hitchcock, *op. cit.* p. 440.

[2] "De cet ensemble de données, on doit, ce me semble, conclure que les Aïnos sont une race fondamentalement blanche et dolichocéphale, plus ou moins altérée par d'autres éléments ethniques dont un, au moins, est essentiellement mongolique" (De Quatrefages, *op. cit.* II. p. 467).

ADDENDA.

SUBJOINED are some of the more important ethnological data which have appeared during the progress of the work through the press, but too late to be noticed in their proper places. The references in the sub-headings are to the pages or chapters where the several matters are discussed :—

I. THE STONE AGES IN NORTH AMERICA (pp. 100 *et seq.*).

Recently the discussion as to the relative age of chipped and polished implements has taken an unexpected turn. Hitherto it has been taken for granted that, in the New World as in the Old, palæolithic necessarily antedates neolithic culture, and that, where there is a time sequence, the chipped stones, being of ruder and simpler formation, naturally precede the more perfected polished objects. But these views, which seemed placed beyond discussion, are now questioned among others by Mr J. D. McGuire, who argues (*The Archæologist*, July, 1894 ; *The American Naturalist*, January, 1895) that the art of polishing by friction is easier and therefore antecedent to the flaking process. Mr Charles H. Read, of the British Museum, had little difficulty in exposing Mr McGuire's fallacies in a paper *On the Evolution of the Art of working in Stone*, in the *American Naturalist* for December, 1894 ; and little more would probably have been heard of the subject, had Mr McGuire not found a sort of "Advocatus Diaboli" in the distinguished ethnologist, Mr W. H. Powell, of the Smithsonian Institution. Referring to the researches of Mr Holmes, in the old stone workshops of the North American aborigines, this observer writes (*Stone Art in America*, *American Anthropologist*, January, 1895) : "In view of these facts, abundantly demonstrated far and wide over the continent, many American archæologists and geologists have reached the conclusion that the distinction between 'palæolithic man' and 'neolithic man,' as determined by the method of making the implements, is not valid for this continent. If these facts or the conclusion flowing from them startle European observers in geology and archæology, it behoves them to reexamine their own

facts, and if by the new methods of geologic observation they can demonstrate a time distinction between exclusively chipped implements and mixed implements fashioned by both processes, we shall not fail to accord belief to their conclusions; but we shall hold the question open until assured that the new methods have been tried."

Thus the war is, so to say, carried into the enemy's camp, and European archæologists are asked to reconsider their own conclusions on a point about which no serious doubt has ever been raised. Mr Powell contends that because, for instance, the Shoshone Indians prepare their implements by chipping, and their Pahvant neighbours by rubbing, while the Uintahs employ both processes, there is no distinction between the palæolithic and neolithic cultures, no time sequence, in North America, and consequently the same may, on further inquiry, be found to be the case also in Europe and elsewhere. The reply is obvious. There is necessarily a time sequence wherever the two cultures have been developed, whether in Europe, America, or any other part of the world. But this sequence does not prevent overlapping, the survival of primitive amid later methods, as fully explained at p. 72. In all cases the ruder precedes the more improved art, and under certain conditions may go on simultaneously with it, or even to its entire exclusion, as in Australia, Fuegia, or Somaliland. Speaking of the relations in the last-mentioned region, Dr Jousseaume remarks that the rude character of the flints is no sure test of their age. Those who have seen how the natives of the arid lands skirting the Red Sea are satisfied with the strictly necessary without seeking for artistic refinements, how their wants are limited to the point of privation, how under pressure they grasp the first rude implement at hand, will understand why "they have made no progress in working their flints, and why the art has remained rude (*grossière*) throughout the stone age of those regions" (*L'Anthropologie*, July-August, 1895, p. 411). Here we have a people still turning out rude palæoliths, while their Abyssinian and Galla neighbours, as well as some of their own kindred, have long been trained to the use of firearms. But what the advocates of the new theory have to show is that the firearms may be as old as the palæoliths. Until this is done, no European archæologist will ever believe that the polished implements of Mr Powell's Pahvants are absolutely as old as the chipped stones of the Shoshone Indians. The time sequence between the two cultures is merely obscured by the overlappings and survivals, by the intermingling of tribes at different stages of civilisation, and by the complete lack of historic records amongst illiterate populations with short memories and traditions going back at most to a few generations.

To Mr McGuire's statement that polishing is easier and therefore older than flaking, it may be answered that much will depend on the nature of the material, whether flint, obsidian, soapstone, quartzite, sandstone and so on. But in any case it is a fallacy to suppose that the easier process necessarily comes first. Transport by wheeled vehicles or by steam is immeasurably easier than by pack animals or by porters; yet these come first in the order of evolution, and all labour-saving methods are a distinct mark of progress.

Attention may here be called to Mr Thomas Wilson's *Primitive Industry*, where it is shown that Mr Holmes's researches (see above) prove nothing against Dr Abbott's Trenton gravel finds (p. 101), which are regarded as on the same time level as those of the European palæolithic deposits (*Annual Report of the Smithsonian Institution for* 1892, Washington, 1893, p. 321).

Still more important in connection with this subject is the paper on the *Antiquity of Man in North America*, contributed to the *American Naturalist* for June, 1895, by Mr E. D. Cope. This eminent palæontologist frankly admits palæolithic man in the northern continent; and, like Mr Wilson, denies that the question is affected by the investigations of Mr Holmes. He has himself collected some obsidian spear-heads in a deposit in Oregon in association with an extinct fauna, which he holds to be contemporary with the pleistocene fauna represented by *Megalonyx*, *Mylodon* and other fossil remains on the east side of the continent. In the face of evidence such as this the persistence of primitive cultures side by side with later developments loses all significance. If these cultures are now synchronous in some regions, clearly they were not so *ab initio;* palæolithic must have preceded neolithic processes in America as elsewhere, unless we are prepared to admit the possible existence of neoliths as well as palæoliths in association with an extinct pleistocene fauna in the northern continent. But in that case *cadit quæstio*, and chipped and polished implements will all alike have to be regarded as dating back not merely to prehistoric times (McGuire, Powell), but to the pleistocene epoch, as in Europe and other parts of the Eastern Hemisphere (Cope, Wilson).

II. Palæolithic Man in Asia (p. 93).

The range of primitive man is now extended to the Irawadi basin, Indo-China, by the discovery of chipped implements in some tertiary deposits near Yenangyoung on the Irawadi, Upper Burma (29° 21′

N. lat.) by Dr Fritz Noetling, of the Geological Survey of India, in the year 1894. At first the beds were supposed to be Upper Miocene, as stated by Prof. T. Rupert Jones in a reference to the subject in the *Geological Magazine* for November, 1894. But in reply to an inquiry by Mr W. T. Blandford, Dr Noetling afterwards explained that he had "definitely ascertained that the bed containing the chipped flints is Pliocene" (*Nature*, April 25, 1895, p. 608). A full account of the discovery was given by the finder at a meeting (Oct. 20, 1894) of the Berlin *Gesellschaft für Anthropologie, Ethnologie, und Urgeschichte.* During a discussion on the antiquity of man which preceded the reading of Dr Noetling's paper, Prof. Virchow took the opportunity of explaining that he had never maintained the "*absolutely* pathological character" of the Neanderthal skull (see pp. 33—4 here). The Yenangyoung beds are stated by Dr Noetling to belong to the *lower* pliocene; consequently the find tends to establish the existence of tertiary man in the full sense of the term.

III. Neolithic Craniology in France (pp. 149—150).

M. Ph. Salmon gives final results as under: total number of skulls measured, 688; of which 57·7 per cent. are classed as dolichocephalic; 24·1 mesaticephalic with index ranging from 77 to 79; 21·2 brachycephalic; most frequently recurring index 73 (*Revue mensuelle de l'École d'Anthropologie de Paris*, May 15, 1895).

IV. Australian Craniology (pp. 179, 182; and Chap. XI.).

Two skulls from Croydon in North Queensland recently added to the collection in the University Museum, Cambridge, are described by Mr W. Lawrence Henry Duckworth in the *Journal of the Anthropological Institute* for February, 1895, pp. 213—218. The first, that of a male adult, is marked by massive, overhanging brows, large upper jaw, strong malar bones and zygomatic arches, low cranial capacity (1,255 c.c.), extreme dolichocephaly (68·7) and pronounced prognathism in norma lateralis, though this feature is not brought out by the gnathic index (96·9). The second, an adult female, shows "much general similarity" to the other, with capacity 1,205; cephalic index 69·9; gnathic index 77·3. "To select the characteristics of the pair would be to emphasize: (1) the prognathism, (2) the great vertical height from basion to bregma, (3) the shallowness of the

glenoid fossa. Of these the marked prognathism is interesting from the fact of the same characteristic distinguishing Melanesian skulls; the same may be said of the basi-bregmatic height. As regards this latter, the result is a height index greater than a breadth index. Such a condition is common in Melanesians, common in skulls from the more northern parts of Australia, but progressively rarer as one advances to the south" (p. 215).

V. Eskimo Craniology (Chap. XIII.).

Six skulls from the East coast of Labrador lately presented to the Cambridge University collection by Dr E. Curwen, and described by Mr W. L. H. Duckworth in the *Journal of the Anthropological Institute* for August 1895, show an extreme degree of dolichocephaly with cephalic index ranging from 75·4 to 65·8. On the other hand the cranial capacity is high, rising from 1340 and 1385 to 1480 and 1550, and in one instance to 1790 c.c. In general the principal measurements and indices "depart in no very important points from those already recorded by other observers" (p. 72).

VI. Tufted Hair (p. 170).

Fresh evidence on this assumed character of the hair of the dark races is supplied by Prof. Virchow's paper on the Dinkas of the White Nile in *Zeitschrift für Ethnologie*, 1895, Heft II. p. 152. "The hair possesses uniformly that property which I have so often described under the name of 'spiralgerollt' [the corkscrew twist]. The so-called 'peppercorns' arising from the closeness of the twist develop in the longer growths those thick curly locks to which is mainly due the 'woolly' look of the hair. Between these peppercorns there occur apparently bald spaces which again gives the impression that all the hair forming each grain grows from a single spot. If the hair be left uncut, so as to acquire a certain length, as is often the case with the women, the grains dispose themselves in continuous rows, giving rise to long ridges with intervening empty spaces, as in the artistic arrangement on a hairdresser's dummy. But such spaces are no more hairless than are the partings made by combs, so that the hair forms no separate clusters or tufted growths ('Büschel'). The process appears very early in life, as in the ten months' old child of Amôl, a member of the Req tribe."

VII. Evolution of Speech (Chap. IX.).

In a paper on *Pithecanthropus Erectus*, contributed by Dr Arthur Keith to *Science Progress* for July 1895, Prof. Cunningham's conclusion that the Java remains indicate "a human race more primitive than any hitherto discovered," is accepted as "very probably right." From a study of the facial parts specially modified for speech Dr Keith further infers that, the arrangement of the mental lines being the same in human fossil jaws as in modern ones, "the muscles which arose from them were adapted to similar purposes, and were therefore subservient for speech. The arrangement of the mental lines in anthropoids is quite different. They turn up in front of the inferior canine teeth, and enclose between them a quadrilateral rough surface corresponding to the triangular mental space of man. In anthropoids this space retreats rapidly downwards and backwards, a feature in which fossil man resembles apes much more than modern man, and shows also, I think, that fossil man was less highly adapted for speech" (p. 364—5). From this it appears that primitive man was not speechless, but that his articulation was less perfect than that of his modern descendants. Thus is confirmed on anatomical grounds our statement that "speech is a function which perfects itself hand in hand with the growth of the organ. Hence the faculty starts from a germ, and its history is one of continuous upward evolution from slowly accumulating crude utterances" (p. 195). It follows as a necessary corollary that the organic or present condition of speech was preceded by an "inorganic phase" as shown in our diagram, p. 212.

VIII. Cephalic Breadth Index (p. 179).

Supply Topinard's formula :— $\frac{\text{Tr. diam.} \times 100}{\text{Ante. post. diam.}}$. That is to say the cephalic index of breadth, as distinguished from the less important cephalic index of height, is found by multiplying the maximum transverse diameter by 100 and dividing by the maximum antero-posterior diameter, as described at p. 178—9.

INDEX.

Abbeville, flints found at, 82
Abbott, C. C., on the flint-bearing Trenton gravels, 101
Abydos district, Nile Valley, flints found in, 92
Abyssinia, a region of ethnical confusion, 390
Abyssinians, their constituent ethnical elements, 390—1
Adelaide tribe, South Australia, of Neanderthal type, 238, 294
Aeta Negritoes, Philippine Is., 259—61; their physical characters, 260; mental capacity, 261
Afars, their ethnical relations, 386—7
Afghans, of Irano-Semitic type, 397
African Negritoes, 246—53
Agglutination, many kinds of, 205; its nature, 209; the first phase of organic speech, 209; passes into Inflexion, Polysynthesis and Isolation, 211—2
Agricultural state, see Social States
Ainus, their physical characters and ethnical relations, 418—20
Akkads of Babylonia, type and speech, 301—2
Ak-kapana, its megalithic doorway, 139
Akkas, early records of, 245; their type, 247
Alfuro, a term of no ethnical value, note, 328
Alignments, monolithic monuments, 130
"Allophylian whites," 308, 318
Ameghino, S., on tertiary man in S. America, 98
America, its prehistoric monuments, 106, 138—9; accessible from Europe in Miocene and later times, 231; and from Asia at all times, 232; peopled during the Stone Ages, 341—2; later migrations disproved, 342—5
American aborigines, their relation to the Mongol group, 222, 336; to the black and white groups, 337—40; aberrant types explained, 337—9; uniform types of, 338; not derived from historical Asiatic peoples, 342, 365—7; two types, long and round-headed, 346—7; everywhere intermingled, 347—9; their physical and mental characters compared with the Mongolic and Ethiopic, 349—52; their temperament everywhere uniform, 353—7; reached America by two routes during the Stone Ages, 362; present distribution of the two types, 362; their various destinies in Latin and Anglo-Saxon America, 370—2
American culture of independent growth, 340; evidences of foreign influences disproved, 340—2; identical with that of the Old World in the first Stone Age, later divergent, 345—6
American languages, their morphology, 211—3; their uniform character, 357—8; absolutely distinct from those of the Old World, 358; great number of American stock languages, 359—60
Amiens, flints found at, 82
Amzigh, national name of the Mauritanian Berbers, note, 384
Anchitherium, 37
Andamanese Negritoes, their physical and mental characters, 256—7
Angkali, "Fishing Chukchi," 319
Anglo-Americans, their physique due to convergence, 372—3
Annamese of Indo-China, 321

Anthropoidea, the five families of the, 17, 18; generalised anthropoid form (diagram), 19
Anthropology, special and general, defined, 1; scope of, 1, 2; criminal, 189
Anthropomorphism, its origin, 217
Anthropopithecus (Chimpanzee), 18; A. sivalensis, 18
Antiquity of man, 50; not a question of orthodoxy, 75; see also Palæolithic and Neolithic
Arabs, their ethnical relations, 393; their type, 393—4; language, 394
Argentina, evidences of primitive man in, 98, 99
Armenians, of Semitic type, 397; their language, 411
Aryan, meaning of the term, 227; note, 395; a linguistic rather than an ethnical expression, 395—6
Aryan languages, their wide diffusion, 410; their main branches, 411—2; their disintegration, causes of, 412—3
Aryan problem, summed up, 410
Aryan root theory exploded, 208
Aryans, their migrations, 396—9; their cradleland, 400—5; primitive culture, 401—2; early contact with the Semites, 404—5; their physical characters, 405—10
Ashton, W. G., on Koreo-Japanese linguistic affinities, 313
Asia Minor, palæolith found in, 93
Assyrians, their ethnical relations, 393; language, 394
Austral secondary and tertiary continent, 230; probable cradleland of man, 236
Australia, evidences of quaternary man found in, 94
Australian languages not related to Dravidian, 233; nor to Malayo-Polynesian, note, 292
Australians, their cerebral structure, 47; not a homogeneous group, 289; their physical characters, 290—1; their constituent elements, 291; their relations to the Tasmanians and to Pliocene man, 292—4; their craniology, 424
Auvergnats, their ethnical relations, 406
Avars, a Finno-Tatar people, 308
Avery, J., on the Tibetan language, 325
Aymaras, their culture, 139—40
Bacon, Friar, on the experimental method, 41
Bacon, Nicholas, his inductive method, 41
Bahrein Islands, their sepulchral mounds, 134
Ball, V., on the Negrito question in India, 256
Baltic Finns, 311
Bantu, origin and meaning of the term, 271—2
Bantu negroid peoples, their type and range, 271; their speech, 272—3; chief tribes, 277—80
Bantu prefix particles, note, 271—2
Barrows, their construction, 124; origin of the word, note, 124
Bartram, H., on the independent character of American culture, 343
Basque language, its morphology, 213; its Berber relations, 205, 377
Basques, their relations to the Picts and Berbers, 377—9; their type, 378
Batwa Negritoes, 248
Beard, a racial character, 177
Beddoe, Dr, on reversion, 35
Bejas, their ethnical relations, 387
Bent, Theodore, on the Bahrein monuments, 134
Berbers, their relations to Neolithic man, 376; to the Basques, 377—8; of black type, 382; their relations to the Blemmyes, 386
Bernier, F., his primary human groups, 163
Bimana, the, 17
Binger, Capt., on the early closing of the cranial sutures in the Negro race, 44
Blemmyes, their ethnical affinities, 386—7
Blumenbach, on the specific unity of man, 160, 161; his primary human groups, 164
Blumentritt, Prof., on the affinities of the Philippine Islanders, 332
Blyden, Dr, a Negro writer, note, 268
Boas, Dr Fr., his theory of the tribe, 7; on the Indian half-breeds, 152
Bonneval dolmen, note, 127
Bory de Saint-Vincent, his primary human groups, 164
Boucher de Perthes, his researches in the Somme Valley, 75, 82
Bourgeois, Abbé, champion of Tertiary man, 75

Bove, G., on the Chukchi Hyperboreans, 319
Boyd-Dawkins, Prof., on Pre- and Post-glacial man, 63; on Lyell's Seasonal-migration Theory, 64; on the continuity of Palæolithic and Neolithic cultures, 73, 113
Brachycephaly, defined, 178
Bradley, H., on the Gothic language, note, 399—400
Brain, weight of, in man and the lower orders, 40, 41; its cellular tissue (grey cortex) seat of mental energy, 44; its comparative study yields better results than craniometry, 47
Branch, meaning of the term, 11
Brassempouy Palæolithic station, its ivory statuettes, 252
Brazil, evidences of primitive man in, 98, 99
Bréal, M., on pre- and post-positive languages, note, 214
Brinton, Dr D., on the assumed Asiatic origin of American cultures, 218—9; on evolution *per saltum*, 235; on the cradleland of the Semites, 392
Brittany, its Neolithic monuments, 129, 133
Brixham Cave, implements found in, 80
Broca, Paul, his definition of Anthropology, 1; his theory of the French Kelts, 34; his cranial measurements, 43, 46; turns from cranial to cerebral studies, 47; his primary human groups, 168; his scheme of cephalic index, 179; on the brain of man and the apes, 191, 192
Bronze, origin and diffusion of, 123; not unknown in America, 123
Bronze Age, 56, 109; in Peru (Chimu), 123, 335
Brown, J. A., on the continuity of primitive cultures, note, 115
Brüx, human remains found at, 146
Bubi, their type, note, 278
Buckland, Miss A., on the origin of the Nuraghi, 126
Buddhist purgatory and Aztec spirit-land, 218
Buffon, on the natural history of man, 166
Bulgarians, their ethnical and linguistic relations, 309—10
Burma, flints found in pliocene beds, 423—4
Burmans of Indo-China, 321
Burmeister, on early man in Argentina, 98
Bushmen, their relations to the Hottentots and Bantus, 249; their mental qualities, 249—50; present social state, 250
Byrne, Dean, on the correlation of speech and temperament, note, 357

Cae Gwyn Cave, flints found in, 81
Cairns, their construction, 124; origin of the word, note, 124
Cairo, implement found near, 92
Calaveras, fossil skull found at, 104
Calendars, American and Asiatic, 218
Callard, T. K., on the antiquity of man, 76
Canada, implements found in, 101, 105
Cannibalism in the Congo Basin, 265; in Hayti, 267
Cannstadt skull, its evidence doubtful, 33
Canterbury gravel beds, eoliths found in, 82
Cape Colony, palæoliths found in, 93
Carles, his discoveries in Argentina, 34
Carnac, its menhirs, 133
Carus, Dr, on the correlation of physical and mental characters, 47; his primary human groups, 165
Castenedolo man, 32
Catlin, G., on the endurance of the Mandan Indians, 354
"Cattle-Herd Theory," the, 14
Caucasians of dark type, 381
Caucasic, meaning of the term, 226; its use justified, 226
Caucasic element in Polynesia, 289; in the Mongol domain, 297—9, 307—8
Caucasus, human fossils found in, 93; inhabitants of, their ethnical and linguistic relations, 415—7; chief divisions, 415—6
Cebidæ, the, 18
Cephalic index, how determined, 178, 179, 426; tables of, 179, 180
Cercopithecidæ, the, 18
Chalk Plateau, Kent, eoliths found on, 82
Chapman, F. R., on the Stone Ages in New Zealand, 95—6
Charancey, M., on the Otomi language, 214

Chelles, flints found at, 84
Chellian Age, 84
Chibcha language, its monosyllabism, 214
Chichen-Itza, 138
Chillicothe, its monuments, 107
Chimpanzee, species, range and characters of, 22, 24
Chimu, Peru, bronze art of, 123, 335; its pre-Inca culture, 335
Chinese language, originally polysyllabic, 207
Chinese race, its physical and mental characters, 321—2; estimates of population, 322
Chudes, "white-eyed Finns," 307
Chukchi, their ethnical relations, 318—9
Chuklukmiut, Eskimo of N.E. Siberia, 318
Cistvaens, their origin and construction, 124
Clan, defined, 5, 6; clan system of kinship, 6; derivation of the word, note, 8
Claymont, Delaware, implements found at, 101
Clémence Royer, Mme., on glacial phenomena, 63
Clough, J. C., on mixed languages, 199
Codrington, Rev. R. H., on the Melanesian languages, 287, 331
Colour of the skin, a racial test, 171; of Negro children, 173
Colours, racial, the six primary, 173
Comhaire, C. J., on a bronze age in Belgium, 109
Cope, E. D., on the man of Spy, 35, 147; on the evolution of the Anthropomorpha, 35; on palæolithic man in North America, 423
Coptos, age of its rude monuments, 56
Corancez dolmen, note, 127
Couvade, widely prevalent, 219; its explanation, 368
Cranial capacity in man and the Simiidæ, 40; to be distinguished from mental capacity, 42; of various races, 43; correlated to mental capacity, 190; its relation to the weight of the body in the animal series, 191; in man and the higher apes, 191; comparative tables of, 192; American inferior to Mongol and Negro, 352
Cranial indices, 43, 46; Negro, 264; Malay, 328; American, 349
Crannogs, Irish and Scotch, 122
Creswell Caves, implements found in, 80
Criteria of race, physical, 171; mental, 191
Croll, Dr, his periodicity theory, 57
Cro-Magnon race, 149; its ethnical relations, 376
Cromlechs, their origin and construction, 124
Cruel, Dr R., his "Turanian" theory, note, 406
Cultures, grades of, often synchronous, hence not always a test of time sequence, 72; Palæo- and Neolithic, comparative tables of, 110, 111; continuity of, 111, 112
Cunningham, Dr J., on Pithecanthropus erectus, 145
Customs, as racial tests, see Usages
Cuvier, his multi-creation theory, 30; his primary human groups, 164
Cycloliths, 130
Cyrus, Thomas, on the mound-builders, note, 107

Dallas, J., on the dispersion and migrations of primitive man, 233—4
Damaras, 253
Danákils, their ethnical relations, 386—7
Dano-Eskimo half-breeds, permanently fertile, 152
Darwin, his view of race and species, 5; his explanation of rudimentary organs, 29; on species and variety, 142
Dauertypus, Kollmann's, 34, 36, 37
Davis, Dr Barnard, on reversion, 35, his table of cranial capacity, 192
Dècle, L., on the Waruanda, 389
De Lapouge, Prof., on Aryan ethnical relations, 407
De Mortillet, his four Palæolithic epochs, 83, 84
De Nadaillac, on the peopling of America, 342; on the Aryans, note, 396
Deniker, J., on the West African Negroes, 153; on pure and mixed races, note, 163; his scheme of classification, 168, 169
Denmark, its peat-beds, 118; its kitchen middens, 119; its neolithic monuments, 135

Dentition, human and simian, 25, 26, 184; its correlation to gnathism, 184; cause of defective in civilised man, 184; its relation to social conditions, 184
De Quatrefages, his theory of evolution, 31; on the Thenay and Monte-Aperto finds, 91; on early man in S. America, 99; his classification of man, 167; his theory of early migrations, 232; on the evolution of the Hominidæ, 239; on "black" and "white" American aborigines, 337; on the relations of Neolithic man in Europe and Africa, 376; on the cradleland and dispersion of primitive man, 376—7
De Ujfalvy, Ch., on the Galcha race and languages, note, 411
Diagram of linguistic evolution, 212
Dolichocephaly, defined, 178
Dolmens, their origin and construction, 124
Dönnenberg, E. G., on the dwarfs of Marocco, 247
Dorsey, J. O., on the fate of the N. American aborigines, 371—2
Douglas, R. K., on Akkadian and Chinese monosyllabism, 207
Dravidian languages not related to Australian, 233
Dravidians, their relations to the Australians, 291; their ethnical affinities, 417—8; their chief divisions, 417
"Druids' Altars," origin of, 125
Dryopithecus, 18; relations of to the Simiidæ and to man, 24
Dubois, Dr E., his Pithecanthropus erectus, 144
Dunn, Dr R., on mixed races, 155
Dupont, E., on the pleistocene fauna, 38, 39
Duval, M., on organ and function, 42
Dwarfs in Marocco, 247; formerly widespread, 246

Earl, W., on grades of culture in Malaysia, 216
Eastern Polynesians, a branch of the Indonesians, 326
Egede, Pastor, on the temperament of the Eskimo, 353
Eguisheim, fossil skull found at, 148
Egyptian culture, antiquity of, 56; ethnical and linguistic relations, 391
Elizabeth Island, Fuegia, its shell-mounds, 96
Ellis, A. B., his explanation of the Clan system, 6; on the early closing of the cranial sutures, 44
Emin Pasha, his measurements of the Akka dwarfs, 189
Endogamy, meaning of the word, note 2, p. 7
English, not a mixed language, 199; its morphology, 213
Eohippus, 36
Eoliths, British, 74; found at Finchampstead, Paddington &c., 82; derivation and meaning of the word, note, 82
Equidæ, their evolution compared with that of the Hominidæ, 36, 37
Erdeven, its alignment, 131
Erith, river-drift implements found at, 82
Eskimo of Siberia, 318—9; of America, their temperament, 353; their ethnical relations unravelled, 363—5; their type, 363—4; their craniology, 425
Esthonians, Baltic Finns mentioned by King Alfred, 311
Ethiopic, twofold meaning of the term, note, 227
Ethnography, defined, 2; scope of 2, 3
Ethnological nomenclature, 3, 4; definite terms, 4—12; indefinite terms, 13, 14; example, 15
Ethnology, defined, 2; scope of, 3
Eugenesis, defined by Broca, 153; proved for all races, 155
Eurafrican miocene continent, 230
Eurasian steppe, cradleland of the Aryans, 403
Eurygnathism, 181
Evans, A. J., on the culture of the Mentone Cave Men, note, 111
Evans, Sir J., on the gap between the Old and New Stone Ages, 112
Evolution, physical and mental of man, 16—49; "per saltum," 235
Exogamy, meaning of the word, note 2, p. 7
Eye, colour and shape of, racial characters, 186; more uniform in the lower than in the higher races, 186; the Mongol and Semitic, 187

Face, its general expression a racial character, 187; four types of, 187
Family, twofold meaning of the word, 8; the social unit, 8; origin of,

conflicting theories, 8, 9; family life amongst the Anthropoidea, 9
Family Tree of the Hominidæ, 224; of Homo Æthiopicus, 244; of Homo Mongolicus, 300; of Homo Americanus, 361; of Homo Caucasicus, 380
Fans, their type and speech, note, 278
Finchampstead, eoliths found at, 82
Finger markings, rather an individual than a racial test, 189
Finn, meaning of the word, 305
Finno-Tatars, their early and later migrations, 308—11
Finno-Túrki, divergent types, 305
Finns, their Mongolo-Caucasic affinities, 305—8; Baltic, 307; their cradleland, 308
Finsch, Dr O., on the Maori, note, 327; on the Malays, 330
Fire, reminiscences of its origin, note, 111
Flores, former presence of Negritoes in, note, 261—2
Flower, Sir W., on reversion, 35; on the Negrito and Papuan crania, 178
Flower and Lydekker, their primary human groups, 169, 221; on the relation of the American aborigines to the Mongol group, 221—2; on the dispersion of the Hominidæ over the globe, 240; on the Australian problem, 291—2; on the physical characters of Homo Caucasicus, 382
Food, of early man and the higher apes, 110, 111
Forbes, H. O., on the Sumatran Kubus, 418
Fort Ancient, Ohio, its earthworks, 107
Franco-Canadian half-breeds, permanently fertile, 152
Fuegians, their mental capacity, 48
Fulahs, physical type, 270; their political ascendancy, 270
Function and Organ correlated, 41, 42

Gabelenz, G. von der, on the Basque and Berber languages, 205, 377
Gafsa, Tunisia, implements found at, 92
Gaillard, F., his theory of the megalithic monuments, 137
Galcha languages, 410—1
Galchas, their type and ethnical relations, 405—6
Gallas, their type and ethnical relations, 387—8
Galley Hill gravels, human remains found in, 147
Galton, Fr., on reversion, 35
Garcilaso de la Vega, on the Tiahuanaco monuments, 139
Garner, R. L., on ape language, note, 195
Garson, Dr J. G., on the Sumatran Kubus, 418
Gatschet, A. S., on the American polysynthetic languages, 214
Geoffroy Saint-Hilaire, his four fundamental types, 166
Geological sequence, the, its bearing on man's antiquity, 50; table of, 51—56
Geological time, various estimates of, 51, 58
Germans of Caucasia, their changed type and unchanged speech, 203
Germans, primitive and later types of, 397
Gesture language, 195
Gibbon, 18, 20; range and species of, 20
Giglioli, E., on inter-glacial man, 70; on primitive Australian implements, note, 95; on the Australian problem, 293; on the Afars, 387
Glacial problem, the, 56; restated, 68
Gnathism, a racial character, 181; various grades of, 181; their evolution, 181; facial, 181; sub-nasal, 181, 182; table of, 182
Gomme, G. L., his theory of the human horde, 13, 14
Gonaquas, 253
Gorilla, range and characters of, 22
Gothic language, its late survival, 399—400
Gray, J., on the relations of Picts and Iberians, 378—9
Greeks, their primitive and later types, 408—9
Green, T. H., his theory of the family, 9
Griquas, 253
Grotte de la Vache, its culture eras, 90
Guatusos of Costa Rica, legendary statements regarding their origin, 340
Guillemard, Dr F. H. H., on the Negritoes of the Philippine Is., 261; on the colour of the Japanese, 316; on the *morais* of Polynesia, 370

Gyarungs of Central Asia, their Oceanic affinities, 326

Haeckel, his Homo primigenius alalus, 30; his classification of man, 167
Hahn, Dr E., his six Kulturformen, 215
Hair, a test of race, 174; its colour and texture, 174, 175; threefold structure of, 176; tufted non-existent, 425
Hairy men, reports of, 26
Hale, Horatio, his theory of the family, 8; on the relations of speech to anthropology, 193
Hallstadt necropolis, 109
Hamites, white, brown, and dark, 383; Eastern division of, 386—9; of Abyssinia, 390; relations to the Semites, 391
Hamitic languages, three groups, 391
Hamito-Semitic, ethnical and linguistic affinities, 391
Hamy, Dr, on the physical characters of the Sudanese Negroes, 269; on Mongolo-Caucasic interminglings, note, 299; on the Indonesians, 326
Hapalidæ, the, 18
Harratins, "black Berbers," 382, 383
Harris, W. B., on the Berbers of Marocco, 383
Hatfield Beds, flints found in, 78
Hayti, Negroes of, 267
Height, see Stature
Hellenes, their primitive and later types, 408—9
Herbert Spencer, on the brain of civilised man and the savage, 191
Himyarites of Yemen and Abyssinia, 390
Hindus, their ethnical relation, 398—9; their primitive type, 409
Hipparion, 37
Historic period, its duration, 56, 116
Hitchcock, Romyn, on the Ainus, note, 419
Hiung-nu, a historic Túrki people, 304
Hodgson, B. H., on the relations of the Asiatic and Oceanic languages, 326
Höhnel, Lieut. von, on the Masai, 389
Hominidæ, the, 17; four primary varieties of the, 25; already differentiated in quaternary times, 33, 34; Tertiary, rejected, 37; are varieties not distinct species, 142—3; the physiological argument, 142; the anatomical argument, 156; the psychic argument, 160; comparative table of their physical and mental characters, 228; their probable cradleland, 236; their order of evolution, 239; their dispersion over the globe, 240
Hommel, Dr F., on the relations of the Hamites and Semites, 391
Homo Æthiopicus, ideal type of, 224; two divisions, African and Oceanic, 242; his Family Tree, 244; his early migrations, 245; see also Negro
Homo Americanus, ideal type of, 224; relations to the Mongol group, 336; uniform physical type, 336—7; Family Tree of, 361; see also American aborigines
Homo Caucasicus, ideal type of, 224; dominant position of, 226; cradleland of, 374—5; first migrations, 375—6; Family Tree of, 380; physical characters, 382
Homo Mongolicus, ideal type of, 224; aberrant types of, 226; original home of, 295; early migrations of, 296; evolution of, 296; physical characters of, 297; see also Mongolic
Horde, derivation and meaning of the term, 13; implies no kinship, 13; its historic and ethnical use, 13, 14; theory of the human horde, 14
Hor-soks, Mongolo-Turks of Tibet, 313
Hottentots, their relations to the Bushmen and Bantus, 249; their mental and physical characters, 251; formerly widespread, 252—3; present range and position, 253; speech, 253
"Hottentot Venus" of Cuvier, 251
Houzé, Dr, on heredity, 35
Hovas, their modified Malay type, 330
Hovelacque, A., his polygenist views, 156
Howarth, O. H., on fancied traces of Japanese in America, 340—1
Hoxne, palæoliths found at, 78
Hudson, W. H., on primitive man in Patagonia, 97

Humboldt, A. von, on the temperament of the Caribs, 355
Humboldt, W. von, on the Basque language, 213
Huxley, his primary human groups, 167; his Xanthochroid and Melanochroid divisions, 379—80
Hyperboreans of Siberia, 317
Hypsistenocephaly, 180

Ibero-Berber relations, 378—9
Ilford, river-drift implements found at, 82
Implements, their value as tests of antiquity, 76
im Thurn, E., on the temperament of the Guiana Indians, 356
Incas, the, destroyers not founders of Tiahuanaco, 139
India, palæoliths found in, 93, 94
Indian half-breeds, U. States, permanently fertile, 152
Indo-African Miocene Continent, 229; probable cradleland of man, 236
Indo-Europeans } see Aryans
Indo-Germans }
Indonesians, a sub-division of the Caucasic family, 326; their Oceanic domain, 326; their physical characters, 327—8
Indo-Oceanic linguistic affinities, 326
Inflection, nature of, 212; reverts to agglutination, 210; grows out of agglutination, 215; merges in polysynthesis, 214
Inter-glacial man, 63, 67
Iranians, their primitive type, 407—9

Jackson county, Indiana, implements found in, 101
Jagor and Koerbin, on the low-caste tribes of S. India, 255
James, F. L., on the Somali, 388
Japan, artificial caves and other evidence of primitive man found in, 94
Japanese, their relations to the Koreans, 313; their origin and type, 314—5; their mental qualities, 316—7
Jastrow, Prof., on the cradleland of the Semites, 392
Java, remains of pleistocene man in, 144; Negritoes of, 262
Jennings, A. V., on the age of the Mentone Cave men, 73
Jespersen, Prof., on the evolution of speech, 209
Johnston, H. H., on the Bushmen, 251; on the Negro temperament, 265
Junker, Dr, on the hair of the Negroes, 175; on the Negritoes, 248; on Negro and Bantu interminglings, 274

Kabyles, their relations to Neolithic man, 376
Kalang Negritoes, Java, 262—3
Karelian Finns, 307
Karons of New Guinea, 261
Keith, Dr A., on the evolution of the organs of speech, 426
Kelt, a term of no ethnical value, 397
Kelts, the, not dolmen-builders, 125, 136; their migrations, 136; their relations to Picts and Iberians, 378—9; their multifarious types, 397, 405
Kent's Cavern, implements found in, 78
Khasi Hills, neolithic monuments in, 130
Khasi language, 325
Kiranti language of Nepal, 325
Kirghiz, a Turki people of West Siberia, 312
Kirkdale Cavern, 75
Kitchen middens, no sure test of age, 77; of Denmark, their age, 119; of Fuegia, their age, 96
Kizil-bash Turks of Anatolia, 312
Knight, E. F., on the temperament of the Paraguay Indians, 355
Kolarian languages, 325
Kolea, Algeria, flints found at, 93
Kollmann, his Dauertypus, 34, 37; his anatomical argument for the unity of man, 156; on Neolithic Negritoes, 246
Koranas, 253
Koreans, their ethnical and linguistic relations, 313
Koryaks of N.E. Siberia, 319
Kubus of Sumatra, their ethnical relations, 418
Kurgans, prehistoric structures, 126

Lacouperie, T. de, on Chinese monosyllabism, 207; on Chinese origin, 323; on Asiatic and Oceanic linguistic affinities, 326

La Denise, human remains found at, 146
Lagôa Sânta, human remains found in, 99
Lahotan, Lake, palæolith (?) found in, 103
Lake Dwellings, of Switzerland, 120, 122; of Ireland and Scotland, 122; wide range and origin of, 121
Laloy, L., on the West African Negroes, 153
La Madeleine Rock Shelter, implements found in, 87
La Naulette, fossil skull found at, 145
Landor, A. H. Savage, on the Ainus, 418
Language, the outward expression of reason, 193; its relation to anthropology, 193; its physical basis, 193; its relation to ethnology, 194; its evolution, 195; its origin in a single centre, 196; develops species and genera which do not mix, 198—9; its value as a racial test, 200, 204; its morphological orders, 205; their evolution, 206; language not commensurate with thought, note, 193; its physical organs, development of, 426
Lanugo, a character of the human fœtus, and probably of the precursor, 175
Lapps, their ethnical affinities and physical characters, 307, 405
Latham, Dr, his primary human groups, 165
Latin, originally a post-positive language, 214
Laugerie Basse, human remains found at, 148
Laugerie Haute Cave, its culture eras, 90
Lebanon, palæoliths found in, 93
Le Conte, J., his theory of evolution, note, 49
Lefèvre, A., on the cause of articulate speech, 195; on coincidences between Old and New World cultures, 219
Lemuria, Sclater's, replaced by the Indo-African Continent, 229
Lemuroidea, the, 17
Lenape Stone, a fraud, 345
Lenz, O., on the Fans, note, 278
Leptorrhine nose, its index, 186
Letourneau, Ch., on the Breton and Mauritanian megaliths, 137
Lewis, A. L., his theory of the Neolithic monuments, 137
Lifynnon Benks Cave, flints found in, 81
Linguistic types not stable, 209—10; evolution, diagram of, 212
Linné, his primary human groups, 164, 222
Little Falls, Minnesota, rude implements found at, 103
Little Miami river, its flint-bearing gravels, 101
Lockyer, Norman, on the age of the Egyptian temples, 56
Lotherdale Cave, implements found in, 81
Louis IX. of France, his reference to the "Tartars," 304
Lovisato, Dr D., on Fuegian family names, note 4, p. 9; on the mental capacity of the Fuegians, 48; on the Fuegian kitchen middens, 96
Lugard, Capt., on the Gallas, note, 387; on the Wa-Huma of Uganda, 389
Lumholtz, C., on the Australian type, 290
Lyell, Sir Ch., his "Seasonal-Migration" Theory discussed, 64—66

McGee, W. J., on palæolithic man in the U. States, 103
McGuire, J. D., his theory of the Stone Ages in N. America, 421—3
McLennan, his theory of the Family, 8; of the Human Horde, 14
Madagascar, its ethnical and linguistic relations, 205, 285, 330
Madelenian Age, 87, 88
Magyars, their ethnical and linguistic relations, 309
Mahn, Dr, on Inflection and Agglutination, note, 215
Makololos, their rise and fall, 273—4
Malagasy, their ethnical relations, 330; see also Madagascar
Malay, meaning of the word, note, 331; the Malay problem, 328—32
Malayo-Polynesian speech, explanation of its wide diffusion, 285—90; its linguistic affinities, 331
Malays, their cerebral structure, 47; their craniology, 328; their general physical characters, 330; their cradleland, 331; their linguistic relations, 331

Mallery, Garrick, his theory of Totemism, 10; on the mound-builders, 107
Man, definition of, 16; his place in the order Primates, 17; his relations to the Simiidæ, 19; resemblances, 25; differences, 25, 46; origin of: creation theory, 28; evolution theory, 29; views of leading anthropologists, 31; mental evolution of, 40; antiquity of, 50; Palæolithic, 71; Neolithic, 108; specific unity of, 141; varietal diversity of, 162
Man, E. H., on the Andamanese, 256—7
Manetta, F., on the early closing of the cranial sutures, 44; on the Negro temperament, 266
Maori of N. Zealand, their Oceanic affinities, 327, and note, *ib.*
Marcilly-sur-Eure, human remains found at, 148
Marocco, evidence of dwarfs in, 247
Masai, their type and ethnical affinities, 389
Mason, O. T., on the evidences of palæolithic man in the U. States, 103; on the peopling of America, 365—7
Mathew, Rev. W., on the origin and migrations of the Australians, 291
Mauritania, its neolithic monuments, 134
Max Müller, on race and language, 165
Maxwell, J. R., a Negro writer on Negro incapacity, 268
Mayas, their monuments, 138
Mayorunas, confused with the Spaniards of the Marañon, 339
Melanesian, twofold meaning of the term, 284; types, 282
Melanesians, their cerebral structure, 47; their domain, 284; their speech more primitive than Malay or Polynesian, 287—8
Melanochroi, their type, 228, 379—80; their range, 379
"Melano-Papuan" languages, 287—8
Menangkabau, cradleland of the historical Malays, 331
Menhir, its evolution, 128—9; meaning of the word, 129; varieties of, 129—30; its range, 130
Mental capacity, determined more by the structure than the volume of the brain, 44; and physical power not correlated, 45; and cerebral structure always correlated, 46
Mental growth, arrested by the early closing of the cranial sutures, 44, 45
Mentone Cave Men, their culture, 73, 114; their fossil remains, 148
Mesorrhine nose, its index, 186
Mestizos of Latin America, a stable race, 151, 152
Mexico, evidences of primitive man found in, 100
Meyer, A. B., on the Kalangs of Java, 262
Migrations, early, their relations to the megalithic monuments, 136; their range during inter-glacial times, 231
Miklukho-Maclay, his comparative studies of cerebral structure, 47; on craniology as a racial test, 177; on speech as a racial test, 193—4; on the Negritoes of Malay Peninsula, 259; on the Mikronesians, note, 288
Mikronesian type and speech, 288
"Mincopies," see Andamanese
Mind, to be distinguished from Soul, note, 41; a function of brain, 41; capable of indefinite expansion, 47; human, differs in degree only from the animal, 48
Minh-huong half-breeds, note, 154
Miscegenation, persistence of, from pleistocene times, 143, 150
Missing links, must be postulated, note, 57, 235
Mitla, palace of, 138
Mivart, St George, on the divisions Quadrumana and Bimana, 17; on the origin of Human Reason, 48
Mixed languages non-existent, 199
Mixed races, prehistoric and historic, 150, 151; American, 151; African, 153; Asiatic, 154
Moab, its neolithic monuments, 134
Mongol, origin and meaning of the term, 303
Mongol race, early migrations and interminglings, 297—9; chief subgroups, 299—301; earliest records of, 301—2
Mongolia, flints found in, 93
Mongolic, twofold meaning of the term, note, 227

Mongolo-Tatar sub-division, 299; objections to this term, 302—3
Monolithic monuments, 123
Monolithic nomenclature, 124
Monosyllabism, not the first but the last stage of linguistic growth, 206—7
Montano, Dr, on the affinities of the Philippine Islanders, 332
Monte-Aperto pliocene beds, flints found in, 91
Moorehead, W. K., on the mound-builders, 106, 107
Morais, Polynesian monuments, described, 369—70
Morgan, his theory of the Family, 8
Morton, Dr, his *Crania Americana*, 47
Mound-builders, the, their age and culture, 106, 107
Moustier Cave, implements found in, 86
Moustierian Age, 86, 87
Müller, Fr., his polygenist views, 157; his Nuba-Fulah Family, 170; his "Nuba-Fulah" ethnical family, 270
Munro, Dr R., on the Irish and Scotch crannogs, 122; on the antiquity of man, 140; on his first appearance in Europe, 141

Naga Hills, monoliths in, 130
Nama Hottentots, 253
Nasal index, how determined, 185; table of, 186
Natal, palæoliths found in, 93
Nation, meaning of the term, 14
Neanderthal skull, not pathological, 33, 34; its characters, 145
Negritoes, normally brachycephalic, 178; early records of, 245; former wide diffusion of, 246; African, 246—53; Oceanic, 254—63; in India, evidence for and against, 254—6; in the Andaman Islands, 256; in the Malay Peninsula, 257; in the Philippines, 259; in New Guinea, 260; in Java, 262; in Timor and Flores, note, 262
Negro race, arrest of its mental growth explained, 44; its prognathism, 184; its twofold division, 243; see also Homo Æthiopicus
Negroes, African and Oceanic, comparative table of their physical characters, 264; their mental qualities, 265; African unprogressive, 265; general low state of culture, 268; two main sub-divisions, Sudanese and Bantu, 269; their interminglings, 274; table of chief groups, 275—80
Neolithic, origin and derivation of the word, note, 74
Neolithic Age, its duration, 55, 116, 117
Neolithic craniology in France, 424
Neolithic culture, table of, 110
Neolithic man, 108; various types of, 149; numerous in W. Europe, 377; relations to Homo Caucasicus, 377—8
Neolithic monuments, two types of, cell and block, 123; their range, 133; their relations to prehistoric migrations, 136; their primary object not worship, but interment, 137
New Caledonians, their dentition, 184
New Grange, its tumulus, 131
"New Race" in the Nile Valley, its ethnical relations, 385—6
New Zealand, its three Stone Ages, 95, 96
Noetling, Dr F., on pliocene man in Burma, 423—4
North Africa, cradleland of Homo Caucasicus, 374—5
Nose, form of, a racial character, 185; correlated to the other features, 185; various types of, 185, 186
Nuba-Fulah Family, non-existent, 170
Nuraghi, origin of the, 126

Oceanic Negritoes, 254—63
Oceanic Negroes, 280—94
Ohio Valley, its age, 100; its mounds, 106, 107
Oldham, R. D., on the Indo-African Continent, note, 229
Olmo, human remains found at, 148
Onkilons, their relations to the Chukchi, 319
On-Uighurs, an historical Túrki people, 304
Oppert, Dr G., on the Aryan (Hindu) element in India, 398—9
Orang-utan, 20; range and characters of, 20, 22
Organ and Function, evolution of, correlated, 41, 42
Orohippus, 37
Orthognathism, how determined, 181

Osmanli Turks, their type, note, 111; their origin and ethnical relations, 311—2
Ostyaks, their physical characters, 306
Otomi language, its morphology, 214
Otta, human (?) implements found at, 31, 91

Paccaritambo, 139
Paddington, eoliths found at, 82
Palæolithic, meaning and derivation of the word, note, 74
Palæolithic Age, various divisions of, 83
Palæolithic cultures, progressive, 73; in some places continuous with Neolithic, 73; grades of, 83; table of, 110, 111
Palæolithic man, 71; spread over the globe, 72; materials for his study, 74; in Indo-China, 423—4; see also Quaternary man
Palæolithic races, their remains, 143—4; all long-headed, 149
Palæoliths, unbulbed, 74
Palenque, 138
Palestine, palæolith found in, 93
Papuan, meaning of the term, note, 282
Papuans, normally dolichocephalic, 178; their domain past and present, 283—4; their physical characters, 284—5
Papuasia, the Papuan domain, 283
Paraderos, meaning of the term, note, 97
Parker, Theodore, on Negro incapacity, 268
Pastoral state, see Social states
Patagonia, evidences of primitive man found in, 96, 97
Patagonian fossil crania of Eskimo type, 364
Paulistas, the, a vigorous mixed race, 152
Peat-beds, Danish, a time gauge, 116, 117
People, meaning of the term, 14
Permian Finns, 307
Persians, their primitive type, 407—9
Peruvians, their culture, 139
Peschel, his primary human groups, 165
Petrie, Flinders, his discoveries at Coptos, 56; in the Abydos district, 92; his "New Race" in the Nile Valley, 385—6
Petroff, I., on the growth of kitchen middens, 77
Philippine Islanders, their complex physical relations, 332—3
Phonesis, a physical function, 193—4
Picts, their ethnical relations, 378—9
Pile-dwellings, see Lake-dwellings
Pinches, T. G., on Akkadian monosyllabism, 208
Pitcairn Islanders, vigorous half-breeds, 154
Pithecanthropus erectus, 24; his physical characters, 144
Placard Cave, its successive culture eras, 89, 90
Platyrrhine nose, its index, 186
Pleistocene fauna, persistence of, 38; man, see Quaternary
Pliocene man, evidence of, in Argentina, 98; his physical characters, 236—7; his migrations, 238
Pliopithecus, 18
Podbaba, human remains found at, 147
Polygenists, their linguistic argument, 156
Polylithic monuments, 123—128; their evolution, 124
Polylithic nomenclature, 124
Polynesians, Eastern, a branch of the Caucasic family, 288; their speech less primitive than the Melanesian, 287
Polysynthesis, its nature, 211; differs from agglutination, 211; see also American Languages
Pont Newydd Cave, flints found in, 81
Post-glacial man, 63, 69
Pouchet, identifies race and species, 5
Powell, J. W., on the American Linguistic Families, 360; on the Stone Ages in N. America, 421—2
Predmost, human remains found at, 34
Pre-glacial man, 63
Prehistoric period, its duration, 55
Prehistoric monuments of America, 138—9
Prestwich, Prof., his objections to Croll's periodicity theory, 58—60
Prichard, Dr, his definition of race, 5; on the unity of man, 160; on the natural history of man, 165—6
Primary human groups, various schemes of systematists, 163; the four funda-

mental, 221—2; their independent evolution from a common precursor, 223; their Family Tree, 224; their differentiation, 225; their physical and mental characters, 227, 228
Primates, old and present divisions of the, 17, 18
Prognathism, how determined, 181
Pruner-Bey, Dr, on hair as a race character, 174
Psychic argument for the unity of man, 160
Pueblo Indians, their *casas grandes*, 138
Puy-Courny, implements found at, 91
Pyramids, Egyptian, "petrified mounds," 128; American and Egyptian compared, 369

Quadrumana, 17
Quaternary man in Britain, 78; in France, 82; in Africa, 92; in Asia, 93; in Australia, 94; in New Zealand, 95; in America, 96
Quechuas, their culture, 139
Quixeramobim Valley, human remains found in, 100

Race, meaning and value of the term, 4, 5; physical criteria of, 171; mental criteria of, 191
Racial characters, persistence of, 34, 35, 37
Raffray, M., on the New Guinea Negritoes, 261
Ray, S. H., on the "Melano-Papuan" languages, 287—8
Reade, W., on the Fans, note, 278
Reclus, Elisée, on the temperament of the American aborigines, 353
Religion, its evolution, 216—7; a poor criterion of race, 217
Retzius, A., on the American aborigines, 346—7
Rhys, Prof. J., on the relations of Picts and Basques, 378—9
Rio Carcarańa, human remains found in, 99
Rio Negro, Patagonia, implements found in, 97
Rodway, J., on the couvade, 368
Rolleston, H. B., on heredity, 35; on an Australian brain, note, 47
Romanes, Prof. on human and animal consciousness, 48
Romans of N. Africa, fair Berber type not due to them, 383—4
Round Towers, Irish, their probable age and origin, 133
Rudimentary to be distinguished from atrophied organs, note 2, p. 26
Ruffin, Col., on the Negro temperament, 267

St Acheul, flints found at, 82
St John, Sir Spencer, on the Negro temperament, 267
St Pierre, its alignments, 137
St Prest, carved bones found at, 91
Sakai Negritoes, 257—8
Salmon, Ph., on the closing of the sutures in fossil crania, 45; on the craniology of primitive man in Europe, 149—50
Samang Negritoes, 257—8
Sambaqui, the, of Brazil, 100
Samborombon, human remains found at, 34, 99
Samoans, their affinities, 326
Samoyedes, their physical characters and affinities, 205—6
Sanskrit, its tendency to polysynthesis, 214; its diffusion in India, 399
Santa Catharina, Brazil, evidences of primitive man found at, 100
Santarem, Brazil, human remains found at, 99
Sarmatæ, of doubtful ethnical affinities, 399, note, 400
Sawaiori languages, less primitive than the Melanesian, 287
Sayce, A. H., on the evolution of speech, 209, 213; on the Blemmyes of Nubia, 386
Schmidt, Prof., his cranial measurements, 43
Schrumpf, G. A., on the Armenian language, note, 411
Semites, their relations to the Hamites, 391; their cradleland, 392; their domain and historic divisions, 392—3; their physical and mental characters, 393—4
Semitic languages, their branches and structure, 394—5
Sergi, his Tertiary Hominidæ, 32; rejected, 37; on the racial value of different physical features, note, 189
Sessi, neolithic structures, 126
Shans of Indo-China, 321
Shell-mounds, see Kitchen-middens
Shone, W., on pre-glacial man, 62
Silbury Hill, a typical barrow, 127

Simiidæ, the, 18; relations of to man, 19
Siret, H. and L., on primitive cultures in Spain, 127
Siryanian Finns, 307
Skull, shape and size of racial tests, 177, 178
Slavs, their primitive type, note, 400
Smith, W. G., on the eoliths of the Thames Valley, 82
Smyth, Brough, on the evidences of primitive man in Australia, 94
Social states, pastoral, agricultural, &c., not tests of race, 215
Solons of Kulja and the Amur basin, 312
Solutré Cave, implements found in, 87
Solutrian Age, 87
Somali, their type and ethnical relations, 387, 388
Sommier, S., on the Samoyedes, Ostyaks and Lapps, 206—7
Soyotes, Siberian Finns, 305, 308
Species, the physiological test of, 142
Specific unity of man, 141
Speech, see Language
Spy Cavern, human remains found in, 146
Stalagmite, growth of irregular, 76; hence no sure test of age, 76, 77
Stanley, H. M., his measurements of the Wambutti dwarfs, 189; on the Wa-Humas, note, 272
Stature, a racial character, 187; table of heights, 188
Stazzone, neolithic structures, 126
Stem, meaning of the term, 11
Stet Cave, flints found in, 81
Stock, meaning of the term, 11
Stock languages, no proof of stock races, 156, 157
Stoke Newington, eoliths found at, 82
Stokes, W., on Picts and Kelts, 379
Stone Ages in N. America, J. D. McGuire's theory, 421—3
Stone-circles, 130
Stonehenge, 131
Stübel and Uhle, on the Tiahuanaco monuments, 138—9
Sudan, meaning of the term, note, 269
Sudanese Negroes, physical type, 269; mixed groups, 269—70; chief tribes, 275—7
Sweden, its prehistoric monuments, 134
Syria, palæolith found in, 93
Szeklers, a Magyar people of Transylvania, 309

Table of mixed peoples speaking unmixed languages, 201; of peoples whosé speech has shifted, 202; of peoples whose type has changed, their speech persisting, 203; of the Aryan linguistic family, 412
Tagalog language of Philippine Is., its relations to Gyarung of Central Asia, 326
Tahitians, their affinities, 326
Talayots, neolithic structures, 126
Tamahu Libyans of the Egyptian records, 384
Tartar, see Tatar
Tasmanians, their relations to the Australians and to primitive man, 292—4; their eolithic culture, 293
Tatar, origin and meaning of the term, 303—4; earliest records of, 304
Tatar Khans and Khanates, explanation of the expressions, 304
Tavastian Finns, 307
Teeth, see Dentition
Ten Kate, Dr H., on the former presence of Negritoes in Timor and Flores, note, 261—2
Terramare, prehistoric stations in Italy, 404
Teutonic languages, 413; phonetic system, 413—4
Teutons, their ethnical relations in Britain, 398; their primitive type, 397, 408
Thenay, human (?) implements found at, 31, 91
Thomas, Cyrus, on supposed evidences of foreign influences on American culture, 342—3
Thought, see Mind
Thurnam, Dr, on reversion, 35
Tiahuanaco, its megalithic monuments, 138—40; their origin, 139
Tibeto-Chinese sub-group of the Mongolic division, 299, 319; their range and physical characters, 319—21; their languages, 324—6
Tierra del Fuego, evidences of primitive man found in, 96
Timor, former presence of Negritoes in, note, 261—2
Tlemcen, Algeria, flints found at, 93

Todas, their ethnical affinities, 418
Toltecs, their monuments, 138
Tongans, their Indonesian type, 326, 329
Topinard, Dr, his diagram of brain weight and volume, 40; on mental expansion, 48; on the hair of the white, yellow and black races, 175; on craniology, 177; on gnathism, facial and sub-nasal, 182; his table of cranial capacity, 192; on Eskimo affinities, 364
Totemism, meaning and origin of, 10; derivation of the word, note, 10
Tremeirchion Cave, flints found in, 80
Trenton, its flint-bearing gravels, 101
Tribe, evolution of the, 7; derivation of the word, note, 7, 8
Trinil, Java, fossil human remains found at, 144
Tristram, Canon, on the Moabite monuments, 134
Tuareg Berbers of fair type, 384
Tunis, remains of palæolithic man in, 92
"Turanian," derivation of the term, note, 302; why discredited, *ib.*
Turk, see Osmanli
Túrki, true name of the so-called "Tatars," 303; earliest records of, 304; primitive and later types, 305
Turkomans, their Túrki affinities, 312
Tylor, E. B., on Totemism, 10; on the specific unity of man, 155; on the influence of Asiatic on American cultures, 218; on Tasmanian culture, 293
Type, two-fold meaning of the term, 12; derivation of, note 1, p. 12

Ugrian Finns, 305
Ugrian Voguls, 306
Uhle, see Stübel
Umbrian, a post-positive language, 214
United States, evidences of palæolithic man found in, discussed, 100—6
Upland, Pennsylvania, implements found at, 101
Ural-Altaic linguistic family, 313—4
Usages, common, a poor test of racial affinities, 219
Uslar, Genl. P. V., on the languages of Caucasia, 416—7
Uxmal, 138
Uzbegs of the Oxus basin, 312

Vale of Clwyd Caves, flints found in, 81
Valentine, M. S., his North Carolina "finds," 342—3
Vandals of Mauritania, fair Berber type not due to them, 383—4
Van den Gheyn, J., on the Aryan cradleland, note, 403; on the Galcha languages, 411
Van Musschenbroek, on the Kalang Negritoes, 262—3
Varietal diversity of man, 162
Variety, the physiological test of, 142
Vayu language of Nepal, 325
"Vénus de Brassempouy," 252
Victoria Cave, Settle, carved bones found in, 81
Viracocha, cult of, 139
Virchow, Prof., on the Otta flints, and tertiary man, 31; his excessive conservatism, 144
Virey, his primary human groups, 164
Volga Finns, 310—1

Wady Bibân el-Molúk, Nile Valley, flints found in, 92
Wa-Huma Hamites, 272; their type and ethnical relations, 389
Waitz, Th., on mixed languages, 199; on speech as a basis of classification, 201
Wallace, A. R., man excluded from his theory of evolution, 32, 38; on the value of cranial studies, 43
Walton-on-the-Naze, engraved shell found at, 78
Waruanda, } their type and ethnical
Watusi, } relations, 389
Westermarck, his theory of the Family, 8
"White Allophylians," 305
Whitney, J. D., on the Calaveras skull, 104
Wilde, Sir W. R., on the Irish crannogs, 122
Wilson, Dr D., on the American aborigines, 370
Wilson, Th., on the flints found in N. America, 105, 106; on palæolithic man in N. America, 423
Windisch, Prof., on Picts and Kelts, 379

Winkler, Dr H., on Ural-Altaic and Japanese linguistic affinities, 313—4
Wochua dwarfs, bearded and hairy, note, 177
Wolf, Dr L., on the Batwa Negritoes, 248
Wusuns of the Chinese records, 308
Wyatt, Dr W., on the primitive tribe of Adelaide, Australia, 238

Xanthochroi, their type, 228, 379—80; their range, 379

Yakuts, East Siberian Túrki people, 312
Yenisei Finns, 308
Yucatan, its prehistoric cities and monuments, 138

Zulu-Xosa Bantus, 271

CAMBRIDGE: PRINTED BY J. AND C. F. CLAY, AT THE UNIVERSITY PRESS.

Digitized with financial assistance from the
Mr. Sangi
on 12 April, 2019